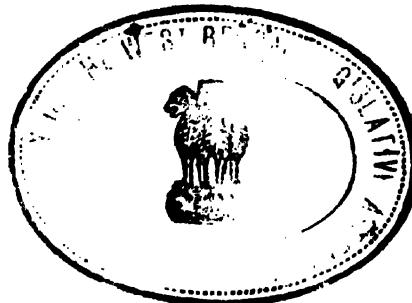
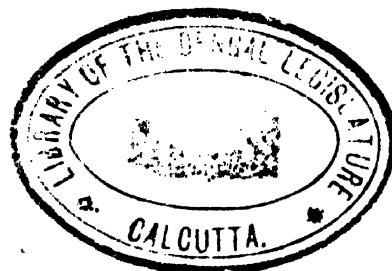
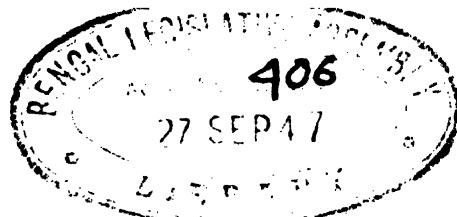


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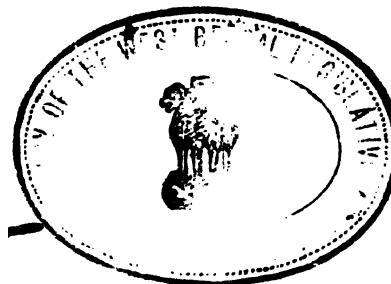


**PROCEEDINGS
OF THE
BENGAL EDUCATION WEEK,
1936**

VOLUME I



**EDITED BY
Dr. MUHAMMAD QUDRAT-I-KHUDA**



**ISSUED BY
THE WORKING COMMITTEE
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CALCUTTA.**

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FOREWORD

The proceedings of the Bengal Education Week and Educational Exhibition, 1936, are now published in two volumes.

The task of editing was heavier and took a longer time than was anticipated; it was entrusted to Dr. Qudrat-i-Khuda, and he and those who collaborated with him in the preparation of the report have had to find time for the work in the midst of heavy duties. When this is remembered and the amount of labour involved in the tabulation of details, it is easy to understand that a certain amount of delay in publication was inevitable.

To organize an Exhibition of this nature and magnitude in a place like Calcutta was by no means an easy work, and delegates and visitors will be able easily to realise the difficulties which faced those responsible for its working. Arrangements had to be made for the accommodation, feeding, and transport from one place to another of more than 700 delegates, and if at times these arrangements fell short of perfection or broke down, I can only express my regret for any inconvenience which delegates or visitors may have experienced. That Mr. A. K. Chanda, on whom the brunt of the preparatory work fell, had, owing to the sudden demise of his father, to leave Calcutta just as the Exhibition opened, was a calamity, and I remember with gratitude the services rendered in Mr. Chanda's absence by Khan Bahadur Tasaddaq Ahmed, Joint Secretary of the Exhibition, and Dr. W. A. Jenkins.

I cannot forget also the great help given by the authorities of the many educational institutions which housed the delegates and arranged for their comfort, and the army of volunteer helpers who worked cheerfully, night and day, and did so much to make the Week a success.

More than 1,800 delegates, representing schools from every part of Bengal, attended the Exhibition, and many thousands of others were present at the various lectures, symposia and conferences. Indeed so popular were many of the ~~features~~ that it was impossible for many hundreds to gain admission and they had perforce to turn away disappointed.

It was a matter of great satisfaction to me to be able to collect so many willing helpers, officials and non-officials, Indian and European, and I owe them a debt of gratitude for their ungrudging and enthusiastic work for the welfare of the Exhibition. Their reward must be the knowledge that they have been instrumental in inaugurating a movement which will be a landmark in the educational history of Bengal.

I cannot conclude without giving my special thanks to all those who, by their generous donations, made it possible to organise the Exhibition, and above all, to His Excellency Sir John Anderson, Governor of Bengal, whose great personal interest and whose continued advice and encouragement was largely responsible for its success.

February, 8, 1937.

M. AZIZUL HAQUE.

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His Excellency the Right Hon'ble Sir John Anderson, P.C., G.C.B., G.C.I.E.
Governor of Bengal

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

Opening Address by the Hon'ble Khan Bahadur M. Azizul Haque, Minister of Education, Bengal, 31st January, 1936.

YOUR EXCELLENCY, LADIES AND GENTLEMEN,

We meet this evening in this historic hall amidst a great mourning which is still going on throughout the Empire. The world has paid its tribute; India has with one voice not only paid her homage, but has expressed her loyalty and devotion, to the memory of that great monarch His Late Majesty King George V who, by the decree of an inscrutable destiny, now rests in eternal peace and comfort, deeply mourned and lamented by the world.

To us connected with educational work, the loss has been immense to ourselves and to our cause. Standing in this hall I feel around us the heartening message which His Late Imperial Majesty gave us on the occasion of the historic address of the University of Calcutta. His immortal words that "it is my wish that there may be spread over the land a network of schools and colleges from which will go forth loyal, manly and useful citizens, able to hold their own in the field of agriculture and all the other avocations of life, and it is through education that my wish would be fulfilled" will for ever inspire us in the path of our duty.

His Majesty King Edward VIII now succeeds to the glorious heritage. I am perfectly certain that I am expressing the feelings of every one connected with this Education Week and Exhibition and of the large number of delegates that have assembled here now from the four corners of this Presidency, that we shall continue to serve King Edward VIII with the same loyalty and devotion and be inseverably bound to him by the same ties of undying homage and respect.

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A century has passed by since Lord Macaulay wrote his famous minute on Indian Educational policy. We stand to-day in a newer and a rapidly changing world. Great social upheavals are on all sides and human activities are seeking a variety of new channels and directions. Nations have to face new phases of economic life. Newer ideals of education are being evolved to mould the plastic minds of children and newer methods, projects and movements are planned and pursued to further the child's development and foster his individual aptitude. Educative forces have gone to-day beyond the class-rooms; libraries and museums, theatres, recreations and sports meetings; clubs, unions and societies; farms, fields and factories, newspapers and travels are now the wider class-rooms for the modern child. The school to-day is not merely for a purely academic life, the measures of which are the examinations, but it is for shaping the future lives of its pupils. A newer awakening to the problem of education is therefore the need of the hour, and Bengal urgently needs a new attitude in tackling the problem of education in the interest of the coming generations.

2. Happily a spirit of critical analysis is already in the air. The Education Resolution of July last focussed attention on the problems of education in the province and perhaps no other problem has for the last half-year been discussed so widely, thoroughly and critically—even passionately;—though I may say some of our critics have been somewhat unkind in judging our proposals and in questioning our motives, in spite of the assurance that the Resolution is only a tentative framework liable to be reshaped in the light of public criticism and suggestions. Yet I feel happy that the Resolution has evoked such widespread public interest. It has furnished us with varied and better data which will help us in making a final decision. For the time, I can assure everybody that when the scheme is finally ready, it will be apparent that we have been solely guided by two main principles, expansion of educational facilities and betterment of education in all its phases.

3. It is in this spirit of critical analysis that in tackling the problems of education, we intend to initiate in this Educational Week a programme of work which attempts a new orientation, through a variety of channels, in order that its extension and projection may permeate every school in Bengal. We are not

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concerned here with the number of schools in the province or with any plan of distribution or redistribution of our educational institutions. Here we are solely concerned with the existing facts—with the educational institutions that already exist to-day or may come into being in the future—and our only objective is to improve the quality and standard of our school education. Our task to-day is to seek out the best that can be followed in our schools, to find how they may be adapted to modern conditions and to the real needs of Bengalee children, so that they may become the fountain-source of inspiration for the future prosperity of this province.

4. Once we put upon ourselves this task, we are immediately confronted with the problem of our educated youths who, soon after finishing their studies, find themselves in a morass of disappointment, unable to discover suitable outlets for the utilisation of their knowledge and proficiency. Disaster is bound to overtake a nation when its educated youths, after spending years in equipping themselves for life, find themselves ultimately cast adrift upon a wide and not always a merciful world. On the other hand, there stands the criticism that our educated youth is an economic misfit and is not fully equipped for the hard struggle of life. If anything, he belongs more to the hyper-literary type and usually prefers the desk to harder walks of life. We are told that our youths have no aptitude for business or other specialised work; that they do not know their own possibilities and have not the gift to utilize their knowledge and training; and that they are too poorly equipped in general knowledge, and are lacking in original thinking and are often mere physical weaklings.

• 5. These are two aspects of criticism. Let us look at the facts. In the year 1934, 14,000 Matriculates, 2,815 I.A.s, 1,948 I.Sc.s, 1,779 B.A.s, 477 B.Sc.s, 366 M.A.s, 122 M.Sc.s, 84 B.T.s, 104 M.B.s, 42 B.E.s, 95 B.Com.s and 646 B.L.s passed the different examinations of the Calcutta University. If the province were in a state of balance between industry and agriculture, if our province were industrially developed, then with the resources and requirements of a province of 50 millions of people, with Calcutta as the biggest centre of trade and commerce, well-organised and prosperous, the number of men passing through the University each year would not be so large after all, that they could not be absorbed within the province. The number

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would probably have been below the normal requirements,—except in the profession of law. As a matter of fact, not many industrial concerns are needed to absorb 122 M.Sc.s annually : and the responsibility for the non-development of our industries does not entirely lie at the door of our education. Education in the long run is concerned with broadening the outlook, strengthening the character and setting up a young man for the varied vocations of life. If society does not expand its economic activities, if our capitalists do not organise and create opportunities for our young men , young men, who would otherwise have done credit to any country, are doomed to be dismal failures. That Bengal capital is shy in industrial development is attributable to other causes. But as an easy solution, education is criticised for creating the educated unemployed. While we are prepared to take our share of the blame, the fault can hardly be laid at our door alone.

6. But even if allowance is made for this outside factor, it may be said that Calcutta is still the biggest business city in the east and is a vast emporium for the distribution of commodities, with thousands of taxies, motor cars, lorries and other conveyances. There are dockyards, engineering and railway workshops, transport agencies, constructional and engineering firms; there are numerous mills in the riparian area ; we have the finest markets here ; we are probably the largest sugar consuming province and require the largest quota of leather and textile goods. We have our civic problems as regards the supply of pure ghee, butter, milk, oil, flour and other comestibles, for a city like Calcutta with its eleven lakhs of people within and many more lakhs in the outer reaches. The critical mind naturally asks—what is the contribution of the Bengalee educated youngman in organisation, production, distribution and movement of these numerous economic needs and requirements? You know the answer.

7. But we must answer the question—Is our average student equipped as well as he should be?

For some years past, students applying for admission into one of our Training Colleges have been examined on their general knowledge. Only

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graduates are admitted for this training. I am quoting from some of their answers :—

How high is Mount Everest?—5,440 miles.

What do the letters A.D.C. stand for?—Asiatic Dramatic Club.

Who discovered the North Pole?—Rev. Rabindra Nath Tagore.

What does L.B.W. stand for?—Bachelor of Law of West Indies.

Name the most famous University of ancient India?—Oxford.

How high can you raise a hockey stick in hitting the ball?—120 ft.

What is the approximate number of high schools in Bengal?—70.

What is a flat race?—Mongolians.

What is meant by quorum?—Good breeding.

How long is the Suez Canal?—2,000 miles.

I have quoted only ten answers amidst many—answers all given by graduates. Fortunately such answers are only few, but even if one single graduate after at least 12 years education in school and college answers in the foregoing manner, it should make us furiously think as to what is wanting in our educational institutions, and it is our duty to so adjust the training in our schools that not even a single boy after finishing his school course—not to speak of a University graduate—betrays such a lamentable lack of knowledge.

8. We have organised the Week and the Exhibition to indicate how mistakes can be corrected and our conditions bettered. Here an attempt has been made to show how to make teaching interesting : to develop curiosity in the young mind : to make him so equipped that he may play his proper role in the economic development of the province and , above all, make him feel enthusiasm and joy in his school work. Great has been the work of the pioneers and other distinguished men and women who have laid the foundation of our educational structure and have brought it to the present state ; but we have to go up the scale higher and still higher ; education knows no static stage. We have to strive after something better and richer, worthy of this province and of its people.

In that task of reconstruction I trust we shall all transcend communal and sectarian boundaries, and rid ourselves of the spirit of distrust and suspicion. On our part, I beseech you all to believe fully in the utmost sincerity of our pur-

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pose and intentions. Let us all take our stand on the highest peak of culture and light, and forgetting all apparent conflicts, start with a basic unity and solidarity and make a new start in the creation of the future Bengal. In that supreme task, let me appeal for co-operation from all, help and assistance from everybody; and let the Education Week stand as a symbol of our earnestness of purpose to attempt opening out new possibilities for bettering our school education so that the educated youth of Bengal may have a fair chance in life and may be fully equipped in knowledge, enlightenment and culture, in manhood and in moral strength and may truly be an object of pride to this province. Our task is enormous: but if every Bengalee—man and woman—if every worker in our cause—Indian and European—considers that this is the problem of problems, in the successful tackling of which rests the future welfare and prosperity of this province, and if everyone is prepared to do his best, I am sure, success is ours. We shall have the inner satisfaction of knowing that we are evolving the best for the future. Let our teachers be the inspiring angels to guide future generations in the path of light and better light; and let us in all humanity and grace pray to the Almighty that He in his providence and mercy will give us the necessary strength and determination.

9. Delegates and Members, on behalf of the Working Committee I offer you our cordial welcome. This Exhibition is the first of its kind and we had to break new ground and organise its numerous details. We had many difficulties in our path with no previous experience to guide us. We have not been able to do all that we intended and there must be many shortcomings. The poet has said,—

“তুমি জ্ঞান মোর মনের বাসনা,
যত সাধ ছিল সাধ্য ছিল না,
তবু বহিশাহি কঠিন কামনা
দিবস নিশি।”*

* “You know to what my heart aspires:
Though poor my means for those desires,
Yet burning zeal hath fed the fires,
Of hope, through night and day.

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মনে বাহা ছিল হ'য়ে গেল আৱ,
গড়িতে ভাঙিয়া গেল বার বার,
ভালু মন্দে আলোয় অঁধাৱ
গিয়াছে মিশি।”*

That symbolises our first effort. Our only excuse is that we have not spared ourselves, we have tried to do our best, and there has been no lack of effort on our part. I trust that you will therefore excuse our shortcomings and cheerfully bear the many inconveniences to which you must be put.

10. In conclusion, I must acknowledge the most cordial help and ungrudging assistance that I have throughout received from every quarter in our endeavour—from Railways, Steamer Companies, Tramways, Post Office, University, Schools, Colleges and numerous other bodies as well as from the general public—except, I regret to say, from the E. I. Railway from whom, in spite of our best endeavour, we could not succeed in getting any concession.

11. I would be failing in my duty if I did not express our deepest thanks to our numerous donors and subscribers and especially the schools of Bengal who have so generously come forward to help us. I would particularly acknowledge the handsome donations of Rs. 6,000/- by Mr. Adamjee Hajee Dawood, Rs. 2,000/- by Mr. Abdur Rashid and of Rs. 1,000/- each by Dr. Narendra Nath Law, Sir Harisanker Paul, Mr. Sewkissen Bhattachar, Mr. H. K. Mitter, Mr. Suraj Mull Nagar Mull, Mr. B. M. Birla and of Rs. 50/- each by Sir Upendra Nath Brahmachari, Sir Badridas Goenka and Kanai Lal Jatia.

12. Your Excellency, when I first mooted the subject of holding an Education Week and Exhibition, it was Your Excellency's encouragement that strengthened me to go forward. Throughout the period of preparation, Your Excellency has taken a keen personal interest in the progress of our work. Your Excellency's guidance has infused new life in all workers for the rural

* My plans are scarce fulfilled aright,
I've built 'mid ruins of wasted might,
Till bad with good and dark with bright
Have mingled in this way."

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reconstruction and welfare of this province. I firmly believe that under Your Excellency's lead and guidance our teachers will receive a new stimulus in their work of reshaping the future of the Province.

It is now my privilege to request Your Excellency to declare the **BENGAL EDUCATION WEEK & EXHIBITION** open.

*His Excellency's Speech at the Opening of the Bengal Education Week
Exhibition on 31st January, 1936.*

KHAN BAHADUR, LADIES AND GENTLEMEN,

May I join with your President in extending a welcome to you all as delegates to this Education Exhibition. During the tenure of my office I have on many occasions paid visits to educational institutions and attended at functions where specific problems of education have been discussed. This however is the first occasion when I have had the opportunity of greeting representatives from all parts of the Province and the first occasion also, I believe, when a truly representative provincial conference has been held to deal with all aspects of Secondary Education.

I have observed with interest and pleasure that the main purpose of this exhibition is the improvement of the actual teaching work in the various types of schools. Of late years in this Province a great deal of emphasis has been laid upon the necessity for reconstruction of educational control and administration. No one can deny that such reconstruction is important—I might perhaps say essential—before a permanent and satisfactory system of education can be established. I do not want to minimise the shortcomings of our present system, particularly in regard to secondary education, but it does seem to me that in our desire for reform we have tended to overlook the equally important fact that progress can only be attained when the actual teaching work in our schools is efficient and satisfactory. Legislation in the Council or changes in the regulations of the University may contribute to ensuring that the boys and girls of Bengal enter upon adult life better prepared and better equipped than at present : but in the long run nothing will be gained without improved work in the class rooms themselves.

Since the end of the last century far reaching improvements in teaching technique have taken place in the West and those improvements have been reflected in the results achieved. In Great Britain it is, I believe, generally recognised that the average boy or girl upon leaving school is at least a year

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more advanced educationally than was the case twenty-five years ago. This advance has been made possible largely by better teaching and a more accurate knowledge of the laws governing intellectual development and the acquisition of knowledge. It is no longer sufficient that a teacher should know the facts that he is supposed to teach or that a pupil should merely be able to memorise his lessons. The teacher must understand as well as know his subject and above all understand his pupils. A knowledge of child psychology is as essential to the teacher as is a knowledge of the properties of materials to the engineer. A whole literature has grown up on the subject of teaching and ideas are rapidly changing. I have been told that it is now realized that if a normal child fails to understand its lessons, the fault lies not with the child but with the teacher. I cannot say whether it is yet accepted doctrine that the teacher should be punished for the delinquencies of his pupils—but, if such is the progress of ideas, then those who teach normal children must watch the results not merely with interest but also with very genuine anxiety.

It is not however my function to enter upon a discussion in detail of the technical matters with which this Exhibition will deal.

What I wish to emphasise here is, that great as is the debt which India owes to the innumerable teachers who, according to their lights, have striven day in and day out to impart their learning to others, there is still greater and better work to be done by the adoption of better and more efficient methods based upon a more complete understanding of a child's mental and physical life.

The knowledge that much remains to be done to improve the ordinary teaching in our schools is not of course new. You will all, I think, agree that if India is to achieve success in her efforts to attain and maintain national greatness she cannot afford to adopt any save the best and most successful methods in the training of her youth. Exactly what those successful methods must be is not easy to decide. Because in America, in Germany or in England certain methods have proved successful it does not follow that such methods can be precisely copied in India. There is much to learn from a study of the many experiments that have been carried out elsewhere, but a slavish imitation even of successful experiments may fail to lead to success in India. Tradition, home environment, and actual teaching conditions are in this country radically different from what they are elsewhere. It follows that any application of

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methods proved successful under different conditions in other lands must be an intelligent application modified to suit local needs and not merely an imitation. India has yet to discover the methods of teaching best suited to the genius of her people. That discovery will come not through the work of one or even a few people but only through the devoted services of large numbers of enthusiastic teachers determined to experiment and evolve the best possible system. If failures in that experimental work are to be minimised, an adequate knowledge of the work that has been done elsewhere is desirable, and a close co-operation with fellow workers here in India essential. Therein lies the justification for this Education Week and the gathering together of teachers from all parts of the Province. Many of you are working in places not easy of access and for the greater part of the year must of necessity be out of touch with teachers in other schools. Libraries and literature dealing with educational work are not readily available and the problem of close co-operation with your fellow workers is more difficult of solution than in countries where communications are good and publications embarrassing in their numbers. To you this is a real opportunity of sharing experience and renewing enthusiasm, and I trust that you will return to your schools inspired with the desire to give practical expression to the ideas that you have imbibed here. You will have an opportunity of seeing the latest devices and appliances that are used to assist the teacher in his work—of witnessing model lessons—inspecting schools and listening to teachers upon various aspects of education. One thing is quite certain and that is that none of you will be able to complain that there were periods during the week when you were necessarily idle. Adequate provision has been made for technical studies, general knowledge and subjects of interest to all. Whatever may be the problems in which you are particularly interested you will find, I think, discussions and exhibits connected with those problems calculated to provoke thought and spread new ideas.

There is one other point to which I wish to refer before declaring this Exhibition open. I can imagine that many of you upon seeing the model class rooms, diagrams, pictures and other exhibits will feel that all this equipment is very wonderful but of no practical value because the limited finances of your schools place it entirely beyond your reach. Such a criticism is, of course, partially valid. We are as fully aware as you are of the

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necessity of making more adequate provision for our secondary schools. The problem of school equipment has so far been almost entirely neglected owing to the existence of a still greater problem namely that of providing adequate salaries. Until the financial condition of our schools is far more satisfactory than at present there will be little money available over and above that required for salaries. But effective teaching is not entirely a matter of apparatus. Its lack makes your task still more formidable but does not prohibit a great advance being made upon present attainments. Much can be done by a teacher who will exercise his ingenuity and utilise the ordinary resources of the village and the school. Illustrations and models can be prepared by the boys themselves under the teachers' guidance. Parents and Guardians can be interested in this aspect of a school's needs and local benefactors might be induced to present really useful articles and apparatus instead of the imposing but rather unpractical encyclopedias that are to be found in so many of our schools. You have a great task before you : you are working under conditions that are far from ideal. We shall do our best to improve those conditions. How far it will be possible for us in the near future to make better provision for your schools I am not, unfortunately, in a position to say. It is possible, however, even under present conditions for you to render great service to your country and your people by steady and persistent improvement of your everyday work in the class room. If this Exhibition makes that achievement more probable it will have been well worth while.

It only remains for me now formally to declare this Exhibition Week open. In doing so I congratulate the organisers upon their hard and successful work and upon the completeness with which they have covered so extensive a field in the problems of secondary education. I also thank all those whose generosity has made possible the raising of adequate funds. I trust that this Exhibition may prove a source of inspiration to all and give a forward impetus to educational work throughout the Province.



The Hon'ble Khan Bahadur M. Azizul Haque, C.I.E.
Minister of Education, Bengal.

*Closing Address by the Hon'ble Khan Bahadur M. Azizul Haque,
Minister of Education, Bengal, on the 8th February, 1936.*

LADIES AND GENTLEMEN, AND TEACHERS OF BENGAL,

We have now come to the close of the BENGAL EDUCATION WEEK and Exhibition and it now devolves upon me to express my deep sense of gratefulness to all those who have unstintedly helped us in making the Education Week a success.

It will probably be agreed on all hands that in spite of many shortcomings the educational balance-sheet of the province has a message of great hope for the future. This is the first time that an Education Week and Exhibition of this character has been held. It was organised with a view to focussing the attention of all concerned on our educational problems, on the different phases of educational technique and their needs and requirements, as well as for the pooling of our ideas and resources. It is true that sometimes we speak about the dismal conditions of our present-day education; but with all that, for myself I have nothing but the highest praise for you the teachers for the manner in which you carry on your work and duties amidst difficult surroundings and circumstances. Believe me, nobody is probably more cognisant than myself of the hard struggle and difficulties that you have to overcome; nobody is more conscious probably than myself of the conditions under which you have to work; and I unhesitatingly congratulate you on your achievement in the face of multitudinous difficulties. Whatever might be the criticism levelled against the present system of education, there stands the undoubted fact that under the present system of education a community has grown up which has supplied the province with its learned and other professions, with leaders in its social and political life, and with its personnel for administration. You can legitimately take pride in what has been achieved in the past; under your care and guidance renowned scientists of world reputation, scholars, historians and philosophers, builders of industry and trade have come out of the portals of schools and colleges; and you have been responsible for the growth of a strong press and public opinion. It is under this present system of education that the

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Bengali language and literature have had a phenomenal development and growth : and even though therefore we sometimes hear our critics say hard words, I invariably take it in the spirit that the criticism is not made by way of condemnation, but merely as an indication of what more could be done in the future. The credit of what is done is entirely yours ; where you fail, it is not your fault.

Education represents the highest expression of a nation's activities ; and its complete fruition cannot be ensured without hard, purposeful thinking and a good deal of patient effort. We are beginning to recognise the wider application and import of education and to-day we believe that it is capable of transforming the class-room into a wider sphere of life, for education is always instinct with life. The hope of education is on the living principle of enthusiasm which spreads and stretches out towards perfection ; and every age has to rearrange, remanipulate, readjust and reshape the whole structure of education. It does not connote a cutting away from the past ; it means simply a further move towards an upward lift. You have for the last few days been treated with the different aspects of what education means in its relation to the manifold expressions of the human mind. You will now go back and think out your programme for the future and find out what is the best course to follow : believe me, no one is better fitted for the task of deciding the form of the future than the teacher himself.

We must congratulate ourselves that we are closing the Education Week with a public address from the great poet, Rabindra Nath Tagore, for you know that in the task of construction, the supreme maker is the poet—the man of vision. For the administrator the task is different. It is for him to watch the shape, to prevent abuses, to help the growth of variations. In the supreme task of reconstruction, the real problem is to evolve a system of sound education for all : and the future welfare of the nation has been fittingly said to depend upon schools. I wish the whole energy of yourselves and of the people of our province may be concentrated on the momentous duty ahead of us ; and I trust that we might rise up to the situation and give our united attention to these problems of building up an ideal system of education for our province. We have to tackle it in a spirit of co-operation and brotherliness. To-day is

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only the day of preparation ; tomorrow the opportunity will come ; yesterday's ideals will be our guide and I trust you will go back deeply imbued with the consciousness that further work has to be done and that the task of reconstruction will entirely depend upon what you will do.

On behalf of the Working Committee I can give you the assurance that we have never been consciously guilty of anything that might be calculated in any way to inconvenience you or put you into any difficulty so long as you have been in Calcutta. I do not deny that there may have been omissions. I do not claim perfection and I know there have been inconveniences ; but I trust that you on your part will also realise the tremendous amount of work that we have had to put through in this connection. We have been criticised here and there for something lacking in our efforts ; but you might see your way to condone our shortcomings when I tell you that day after day a conscientious and honest band of workers and volunteers have worked with unflagging zeal and admirable devotion to duty and have given their best. If in spite of this we have failed at any point, it is because at some point or other something happened which could not have been anticipated.

It would be invidious on my part to mention names ; but I can assure you that everyone connected with this Education Week has spared no pains to be helpful and some of them have worked from early dawn till about midnight and this for days on. If as a result of this Education Week and Exhibition we find that there is a single teacher who has been able to derive any benefit from the manysided activities—the numerous lectures, addresses, symposia, demonstrations, excursions, sports and myriads of other items of interest that we organised, if a single teacher feels that he will be able to do a little better than before, we shall feel ourselves fully compensated for all our trouble. Believe me, whatever might sometimes be said by our critics to the contrary, I do not believe that everything depends upon the financial improvement of this province. Much can be done with large funds ; a lot can also be done without. What depends upon better financial conditions might follow later when Government and the people could husband their resources and spend more money. For myself I would be happy if I could get more. But I do not think that it would be wise on our part or in our best interests to hold up all improve-

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ment till then. When a boy is to be trained to develop his original thinking, to be equipped in general knowledge, when the school, its compound, its environment are to be beautifully and artistically arranged, the class-rooms to be fitted with graphs, charts and pictures, when a boy is to be taught to love his school and his teacher, how the subjects are to be taught in a congenial and relevant atmosphere, how the boys are to be healthy and cheerful and every boy is to be fond of sports and games, how the boys are to be properly drilled and disciplined and are trained in the basic virtues and moral ideas when he is taught to love his country, its people, its rivers and its forests and hills, when he has to develop a sense of corporate life and is trained in social service and team-work—they do not depend upon any such financial outlay as it is not possible to tackle these features to-morrow. I am sure we can do all that is necessary in these directions even under conditions of limited funds; and it is here that teachers will play their traditionally great role. On our part, I can assure you that we shall be prepared to do our best in a spirit of good-will and helpfulness in order to develop the schools on these lines. It is on the teachers of Bengal that her future rests. It is for them to make or unmake it and I trust they will go back to their schools inspired with hope and courage and with a sense that they have a noble duty to perform, the successful accomplishment of which will carry its own reward.

In conclusion, on behalf of the Working Committee I once again thank the distinguished lecturers that have come from far and near to address the teachers; the eminent men who have given demonstration lessons, the exhibitors who have fully co-operated with us in exhibiting their school work; the numerous volunteers that have laboured harmoniously and ungrudgingly; the sectional committees that have worked hard and incessantly to make the functions a success; the various institutions that have kindly lent their buildings for the accommodation of delegates; the railways, tramways and steamer companies that have been so good as to offer concessions; the mills and factories, etc., who have kindly permitted us to show these places to our delegates; the transport agencies that have helped us in the movement of the large number of delegates promptly and comfortably; the St. Xavier's and St. James College authorities who have been kind enough to organise dramatic performances; the University Rowing Club for arranging rowing demonstrations; the University

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authorities for accommodating us in every possible way; and particularly the sectional Secretaries, Presidents, Members of the Working Committee on whom the full brunt of the work fell. Nor am I unmindful of the valuable assistance of our generous donors and patrons who have helped us to meet our financial liabilities. I also cordially thank the Press for giving publicity to our activities; and I no less heartily thank the authorities of the Boy Scouts and Bratacharis, as also the Calcutta Corporation, for giving a display of physical culture. It is invidious to mention names, and I thank such and everyone for the splendid co-operation we have received in our efforts. I can assure everyone that since we started on this work, they have, each and all, devoted their time, energy and money to ensure the success of our Education Week. Ladies and gentlemen, I trust that our delegates will go away with happy remembrances of this memorable occasion and forget their many inconveniences.

Speech by Sir George Anderson, Kt., C.S.I., C.I.E., Educational Commissioner with the Government of India, at the Bengal Education Week, on the 1st February, 1936.

I would first thank you for your kind welcome ; it is to me a great pleasure to be in Calcutta once again. As I stand here, my thoughts are irresistibly turned to those strenuous and happy days, now nearly twenty years ago, when I was with the Calcutta University Commission. Of Sir Michael Sadler I have since seen a good deal as he became Master of my old college at Oxford, a post from which he has only recently retired. With the late Sir Asutosh Mookerji, I was intimately connected until almost the day of his untimely death. What attracted me perhaps most about that dominant personality was his long-sighted vision and at the same time his thorough and sustained attention to detail. I still remember his driving me to the station after the close of the deliberations of the Post-Graduate Committee (of which I had been a member). We were both of us very tired after our labours ; I myself, though a much younger man, looked forward merely to such repose as might be my lot in the train, but not so Sir Asutosh. As he shook my hand in farewell, he proclaimed that he would return at once to his home in order to work out the details of the scheme of post-graduate studies which the Committee had recommended. It is a great consolation that in the absence of his illustrious father, his son now sits in the Vice-Chancellor's chair which his father once adorned.

It is also a great joy to be here during the time of this Conference and Exhibition. When I was in the Punjab, we organised a similar venture, which was attended by most beneficial results. We all received encouragement from the outward and visible sign of the progress which had been achieved in the schools ; we all were inspired by the stimulating discussions of the Conference ; many of us found relief from the loneliness in which we were working and reminded that the members of the teaching profession form a great fraternity working for the good of the commonweal. I offer my sincere congratulations to those who have been instrumental in organising this gathering ; in particular, to the Education Minister and to Mr. Chanda, who have worked so hard towards the success of this great venture.

When I read educational reports (my own included), when I listen to public and private orations, I am tempted to feel that we educational people are perhaps a little too frank with ourselves and that we are apt sometimes to become unduly depressed. That we should sometimes feel appalled by the difficulties which beset our path is not a matter for surprise; for the progress of education is linked to, and impeded by, forces over which we have little or no control.

There is, first, the obstacle of poverty of many kinds; there is the poverty of Government and of local bodies; there is also the grinding poverty of the masses who often have not the wherewithal to keep body and soul together. In this distressing predicament, parents can scarcely be blamed if they make use of the labour of their children instead of sending them to school. Next, there are the ravages of disease, especially of malaria, which must often result in depleted class-rooms and in poor attendance. Another obstacle is the absence of good communications, which must result inevitably in diffusion of effort and in multiplying the number of schools beyond what would otherwise be required.

Yet another obstacle is the persistence of social customs, particularly as reflected in the attitude towards girls and women. Many are disappointed by the comparatively slow progress which has been made in the education of girls and contrast the rate of progress in India with that in certain other countries. In reply, I would ask what would be the effect if, in England for example, the edict went forth that little girls should be taught in schools separate from their little brothers and that women should not teach in primary schools for boys; yet in India it is the ordinary practice for little girls to be taught in separate schools, and it is only of rare occurrence to find a woman teacher in a boys' primary school.

Please do not think that I am complaining or trying to make excuses; my main intention is to stress the vital importance of education in the life of this or any other country. Though education, by itself, cannot remove poverty, cannot improve communications, cannot abolish disease, cannot mollify social customs, it is yet the essential preliminary to all reform. Though we should therefore be humble in face of great responsibilities, we should not be unduly depressed because progress has not been as rapid as we would have wished.

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There is much, indeed, that should cheer us in our labours. There is, first, the great quantitative advance which has been made in recent years. The fact that the enrolment in British India has advanced from 8 millions in 1917 to 13 millions in 1933 gives us at least a few crumbs of comfort. The indication is at least that the desire for education is growing rapidly.

In particular, there has recently been a great quantitative advance in the education of girls. Even more important, girls now tend to stay longer at school and thereby reap greater benefit by their schooling. The statistics are truly remarkable. The number of successful candidates in Matriculation rose from 1,002 in 1927 to 2,138 in 1932, and then swiftly to 2,770 in 1933 and to 3,325 in 1934. The Bengal figures are particularly exhilarating, the number rising from 157 in 1927 to 394 in 1931, and then rapidly to 609 in 1934. The degree figures are similarly pleasing, but I shall not overload my address with figures; those who wish to pursue the matter further can ascertain the figures from the reports.

In view of this advance, it is all the more distressing that provincial Governments, with the possible exception of Madras and the Punjab, have done but little to correct the disproportion in expenditure on the education of the sexes. It is difficult to resist the awkward impression that, during a time of financial stringency, the first item of expenditure to be thrown overboard is that on girls' education; yet this is the very time when, if it is to avoid the pitfalls which now beset the education of boys, the education of girls should be placed on a firm and stable foundation.

Another pleasing advance lies in the improved attitude towards the children of depressed classes. The most that was even thought of a few years ago was merely to institute a number of segregate schools, thus crystallising the stigma of inferiority. The present and more salutary tendency is to rely less and less upon segregate schools, and more and more on ensuring that these children shall be admitted on equal terms with other children to the ordinary schools of the country. This healthy practice is steadily gaining ground, and reports from all provinces indicate that caste prejudice is rapidly disappearing.

I wish that I could give an equally satisfactory report on segregate schools intended for different sections of the community. In addition to the danger of unnecessary duplication and competition, segregate schools are not conducive

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to creating a happy and a united India. It is scarcely salutary that boys and girls, during the impressionable years of youth, should be educated in a narrow and restricted atmosphere; they should rather be mixing intimately with children of other communities and be trained in a spirit of tolerance and good-will towards those of other creeds and beliefs.

Another sign of progress is the marked improvement in the playing of games and in providing facilities for healthy recreation and for physical training. Many schools are no longer the drab and dull places which they used to be; this exhibition alone is proof of this contention. I would say a word, in particular, on the subject of physical training. I have taken exception to the segregate school; I also take exception to the segregate teacher. The specialist in physical training (and he is abundantly needed) should be concerned with training colleges and with the work of inspection rather than with teaching in individual schools. If such specialists were available in the training institutions, it would be possible to ensure that all future teachers should be trained, in addition to their other teaching duties, to take part in physical training which would no longer be at the mercy of largely illiterate training instructors. Unless this policy is developed, I cannot see how physical training can be conducted in the primary schools of Bengal in that most of those are of the single teacher variety.

When, therefore, we review certain aspects of our educational system, there is good cause for satisfaction. When, however, we review the actual effects of our labours, when we realise (as we must) that the quantitative progress in primary education is by no means attended by a commensurate reduction of illiteracy, and that such increase in literacy as has been achieved is almost counterbalanced by the increase in population, when we realise (as again we must) that large and ever-increasing numbers of our pupils are unable to find suitable employment, when we review the enormous wastage which persists in all forms of education, our feelings of satisfaction are turned inevitably to those of grave disquietude.

The Hartog Committee were justified in pointing out that—

“All sections of the community have little, if any, choice of the type of school for their children. The present type of high and English middle school has established itself so strongly that other forms of

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education are opposed and mistrusted, and there is a marked tendency to regard the passage from the lowest class of a primary school to the highest class of a high school as the normal procedure of every pupil."

In consequence of this aimless drift, large and increasing numbers of pupils prolong unduly a purely literary form of education with the result that not only do they congest the high school and university classes, but they themselves become unfitted for, and indeed averse from, practical occupations and training. Another unfortunate feature of our present system is that "the normal procedure" is interrupted every two years by a biennial examination. At each period of two years, a boy spends the period of six months of the first year in adapting himself to new conditions and often to new surroundings; he also spends the last six months of the second year in "cramming" for the next examination. There is thus little time or scope for continuity of study. Moreover, an examination should have a definite objective; it should test whether a pupil has completed successfully a definite stage of education; it should, therefore, come at the end of that stage. But our examinations appear to have no definite objective; they merely represent a succession of milestones along the dreary road towards a degree, which only a negligible proportion succeed in taking or even aspire to take.

We should therefore reconstruct our system of education in such a way that it shall be divided into a number of separate stages, each with a clearly defined objective and untrammelled by university requirements. At the end of each stage, pupils should be diverted to suitable occupations or to vocational institutions. Such was the general plan of reconstruction which was recommended in 1934 by the Universities' Conference and which was endorsed a short while ago by the Central Advisory Board of Education. Let me try to review, very briefly, what should be these stages of education and what should be the objective of each.

Before doing so, I would ask you to note the word 'diverted'. The Board were carefully to avoid the implication that they were proposing a restriction of educational facilities. Pupils should not be denied the benefits of education merely because their bent does not lie in the direction of literary studies. Such pupils should first receive a suitable measure of general education and then, on the basis of that foundation, they should be provided with ample

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facilities for practical training which would attune their bent to practical occupations and would not, as does the present literary form of education when unduly prolonged, render them averse from such occupations and training.

The Board first recommended that "the primary stage should provide at least a minimum of general education and training, which will ensure permanent literacy". It is extremely doubtful, however, whether even this very modest objective is being achieved, or whether India as a whole is making much leeway against the forces of illiteracy. Educational statistics provide the melancholy information that, in Bengal for example, only 15 per cent of the total enrolment of boys and only 2 per cent of the total enrolment of girls in the four primary classes reach Class IV (when literacy may be anticipated) within the prescribed period of time. Moreover, the conditions of village life being what they are, many even of the very limited number of pupils who attain literacy only too often relapse into illiteracy shortly after leaving school.

It has been represented that a rapid introduction of compulsion would be the panacea of all our ills and would speedily result in a literate India. I myself am a keen supporter of compulsion; the Punjab can at least claim that it has made vigorous efforts in that direction as, according to the latest statistics, as many of 3,073 school areas in the Punjab were under compulsion. But I am bound to admit that the effective results are by no means commensurate with the efforts which have been made. Unfortunately, compulsion cannot be introduced merely by an order or by a stroke of the pen; careful preparations are required.

In the first place, we have to take into account the gloomy subject of finance. I sometimes feel that a terrible amount of time and energy is wasted in working out detailed figures of expenditure which must inevitably be misleading and become quickly out of date. An approximate figure is easy to arrive at. Take the average cost of educating a pupil in a primary school and multiply by the number of additional pupils who would be educated as a result of compulsion and a definite figure will be reached. But there will be a world of difference in the ultimate and actual figure as a result of the degree of efficiency that will obtain. Suppose, by a stretch of imagination, that the teaching arrangements will be so efficient and attendance so regular that every pupil will complete successfully the primary stage within four years, the cost of

compulsion would be comparatively small and would be amply justified. Supposing, on the other hand, that the teaching arrangements will be so ineffective and attendance so irregular that not a single pupil, even after a stay of six years at school, will complete the primary course, the cost would not only be infinitely greater but would not be justified. An essential condition to success is, therefore, that the schools in which compulsion is applied should be both efficient and economical. I am also doubtful of the morality of fining parents for the non-attendance of their children, unless and until we can assure them that their children would gain practical benefit by their schooling.

These considerations are appreciated in certain quarters ; hence the proposal that compulsion should first be attempted in a few progressive districts. I do not myself agree with the partial introduction of compulsion in a number of wide areas, as such a practice would simply be a material interpretation of the Biblical text : "To him that hath shall be given , and from him that hath not shall be taken away even that which he seemeth to have." The amount of money available for primary education being limited, it would scarcely be equitable to devote the vast bulk of that amount to providing widespread facilities for every child in a given district, while children in other backward districts would inevitably become worse off even than before. Similarly, such a policy would accentuate still further the present disproportion in expenditure on education between the sexes. Are the girls to starve until their brothers have been amply fed?

On the other hand, I am strongly in favour of applying compulsion in every school area, in which the primary system is both economical and effective and in which public opinion is favourable. In other words, compulsion should be regarded as a reward for good works, good administration and general enthusiasm.

It is also for consideration whether it would not be advisable, at any rate in the initial stages, to concentrate on ensuring that pupils already at school shall remain at school rather than, as the Linlithgow Commission neatly put it, on "straining after the last truant". In any case, it is far more important in the initial stages to ensure that, year by year, those of the minimum age shall attend school regularly, than to compel boys within a year or so of the maximum

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age to receive infructuous schooling and thus to embarrass the training of those who deserve good teaching.

Universal and compulsory education should not therefore remain a distant ideal ; we should take immediate steps for preparing the way towards the achievement of that ideal. What should be those steps ?

In the first place, we must decide what is the minimum time in which (granted good teaching and regular attendance) the average pupil can attain permanent literacy. The Sapru Committee has recently recommended a period of six years. We have been striving to reach the same period in the Punjab ; and it is something at least that more than half of the primary pupils in that province are now enrolled in lower middle schools (with six classes in each), where the teaching should be far more effective than that given in the four-class primary schools. But we have to consider not only the large expenditure, which would be involved by the introduction of a six-year primary stage, but also the dire necessity felt by parents in rural areas for the labour of their boys. I am therefore driven to the conclusion that, in present conditions, the primary stage should be one of five years. Be this as it may, I am confident that a lower primary school (with only three classes) is practically valueless either for the purpose of attaining literacy or for laying a firm foundation on which to build up an efficient and economical edifice of compulsion ; yet the vast majority of primary schools in this Presidency are of this type and, what is even more unfortunate, they are almost invariably of the single-teacher variety. The average enrolment of a primary school in Bengal is only 38, a figure lower than that in any other province except Bihar. I am therefore driven to the conclusion that the vast majority even of the comparatively small number of pupils who now reach Class IV within the normal period of time are enrolled in the primary departments of secondary schools and that the primary schools make almost a negligible contribution towards the reduction of illiteracy.

Having decided the duration of the course, the next step will be to provide the schools in which the course shall be *efficiently* taught ; efficiency is essential as even a period of five years is all too short for the attainment of permanent literacy. The object in view should be that, in the interests of economy, every class of every primary school should include the full complement of pupils

(say 25); and that, in the interests of efficiency, no teacher should teach more than one class at the same time.

Unfortunately, throughout India, there is much diffusion of effort in the primary system. A few years ago, the Director of Public Instruction, Bihar, observed that—

"There is a movement for substituting for the village school a variety of schools intended for the benefit of particular communities..... We are now reaching a stage when each village wants a primary school, a maktab and a pathshala. In addition, it is claimed that even at the lower primary stage separate schools are necessary for girls, and also in many places separate schools for children of the depressed classes. Thus, in the poorest province of India, we are asked to provide five primary schools for each village."

We should therefore review at once the distribution of primary schools. We must first eradicate all signs of ignoble competition. As already suggested, we should be scrupulously careful in giving the different classes fair play and in admitting their children *pari passu* with other children to the ordinary schools. We must next provide that the religious and cultural requirements of communities shall be duly observed with a view to providing in each school area a central school for all children within that area. Finally, though we should consider the urgent necessity of introducing a scheme of co-education at the primary stage, we should remember that such a system should apply not only to the pupils but also to the staff. Little girls should not be admitted to school with their little brothers merely by sufferance.

The next step will be to consider the curriculum of primary schools. In this respect there is danger of losing the right perspective; it is suggested that the curriculum should be overladen by a number of subjects, forgetful of the fact that the pupils are small children whose main business it will be to attain permanent literacy at the earliest possible moment. It is essential, no doubt, that pupils should be taught through the medium of what is familiar to them, that the reading books should be suitable and so forth, but it would be of little value to recast the curricula and to re-write the text-books unless and until teachers who understand the new learning have become available. In this as

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in all other educational reform we should be careful to begin with the teacher and end with the text-book.

Our most important and difficult task, therefore, will be to find the teachers who, given reasonable emoluments and also reasonable conditions of work such as I have described, will be successful in imparting literacy to the pupils.

If, however, the teachers are to be successful, they should undoubtedly have received training; otherwise, they cannot be expected to be successful in the difficult task which lies before them. The figures unfortunately tell us the melancholy fact that the percentage of trained teachers in Bengal is only 28, a percentage lower than that in almost any province. Moreover, the number of primary teachers under training is so small that, at the present pace, it will be a long time before Bengal can reach a reasonable percentage of trained teachers in primary schools. I am tempted to suggest that the present system of maintaining a large number of minute training classes is neither efficient nor economical. A policy of consolidation, therefore, seems to be required.

It is also desirable that, in rural areas, primary teachers should be in sympathy with their environment, and should therefore have received their general training in vernacular middle schools. The recommendation of the Board that, at the secondary stage, "the courses in rural areas should be attuned to rural requirements" is therefore of great importance. The progress of the countryside is dependent very largely upon the guidance that should be given by an indigenous agency; it cannot be promoted effectively by means of sporadic and largely inexperienced efforts from outside. It is therefore unfortunate that, in the present educational system, boys and girls who might have provided that agency are often led away to the towns in order to receive a purely literary form of education, in consequence of which they not only congest still further high schools and colleges, but also become lost to the service of the countryside. It is therefore unfortunate that this type of school, on which the development of the countryside largely depends, has fallen into decay in Bengal, especially as it is so very largely an agricultural province. A rural flavour or bias cannot be imparted merely by adding a book knowledge of agriculture to the curriculum of an otherwise urban school; what is needed is a vernacular middle school which is self-contained and whose objective is

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to train boys and girls in the service of the countryside. A country, which neglects and impoverishes its countryside, must inevitably lose sooner or later its reservoir of strength. It is for this reason that I rejoice that my own country is making belated but nonetheless laudable efforts to enliven its countryside by means of a well-devised system of rural education.

I have suggested that there should be separate and self-contained stages of education, each with its own objective and that at the end of each stage pupils should be diverted to practical occupations and training. The main point of diversion will undoubtedly be at the completion of the secondary stage. The crucial question therefore, is when that stage should end. Statistics tell us that, in British India, 66 per cent. of the boys in the higher classes of high schools cannot enter for, let alone, pass Matriculation until they are eighteen years of age or older. The indication is, therefore, that a very large number of pupils prolong unduly a purely literary form of education and that, by so doing, they become unsuited to, and indeed averse from, practical occupations and training. I therefore submit that the stiffening of Matriculation standards, by itself, would be wrong policy; it would not only be an undesirable form of restriction, but it would tempt pupils, with little or no literary bent, to prolong still further or even more infrustruously their literary studies in high schools and to become even less inclined than they are now to practical occupations and training. The root of the trouble lies deeper than Matriculation; it is to be found in the schools themselves.

If vocational training is to be effective and successful, the main diversion from the literary form of education must take place before Matriculation. We must therefore select an age when, on the one hand, a pupil will have had time to acquire a sufficient measure of general education as a basis for his vocational training, and when, on the other hand, he will not have become so 'set' in the literary rut as to have become averse from practical occupations and training. At all costs, he must not wait too long.

The Board have advocated "a lower secondary stage, which will provide a self-contained course of general education and will constitute a suitable foundation either for higher education or for specialised practical courses." In view of the fact that, over and above this stage, there is to be a higher secondary stage, it is presumed that the proposed secondary stage will be of

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shorter duration than at present, and that its objective will be to provide a suitable measure of general training to pupils up to, approximately, fifteen years of age. This arrangement would seem to fulfil the two essential conditions; a suitable measure of general training and an age when the pupils would be more likely to take advantage of practical training.

What then of this practical or vocational training which will follow on after the completion of this shortened secondary course? Some urge that practical training should be provided as optional subjects along with the literary subjects. Such an arrangement, in my opinion, would be fatal to success. To be successful, vocational training requires expensive equipment and, above all, experience and practical teaching. Moreover, resources should not be dissipated but should, as far as possible, be concentrated in institutions designed for the purpose. There is also a grave danger that a haphazard intermingling of vocational and literary study may defeat the very object in view ; pupils might be tempted by the bait of somewhat superficial or intermittent vocational training to prolong unnecessarily their literary studies and thereby to become averse from practical occupations. I am therefore convinced that the new facilities for vocational training should be given as far as possible in separate vocational institutions.

We are told that all this will cost money and that India has not the wherewithal to meet the large expense that would be involved. I would reply that all education, in whatever form, costs money. The question at issue is whether we should continue the largely wasteful system of to-day or whether we should strive to spend at least a portion of the present expenditure on more productive and more practical forms of education. I am myself amazed that Governments and other authorities continue to subsidise a purely literary form of education for large numbers of pupils who are unlikely to reap benefit therefrom. To those with a statistical bent I would suggest that they should try and estimate the expenditure on those who are unduly prolonging their literary education. Count up the number of those pupils in high schools who cannot expect to enter for, let alone pass, the Matriculation until after reaching the age of sixteen or later, and then estimate the expense (capital, recurring and personal) which is incurred on their education. Count up, again, the number of students in colleges who fall by the wayside and never succeed,

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even after years of labour and of many unsuccessful attempts in taking a degree, and then estimate the cost of their unsuccessful efforts. I myself estimate the amount at Rs. 5 crores a year in British India. Whatever be the amount, it must be a very high figure. I do not suggest that the whole of this vast sum would, or could, be saved by a diversion of these pupils and students; my contention is that large sums of money are being squandered and that much of the money could be spent far more profitably by providing a more suitable form of practical training for these pupils.

I must now bring my remarks to a close, as I hope that there may yet be time for discussion. I realise that I have been able to give only a very brief sketch of the general scheme of school reconstruction which seems to me essential. I am not therefore in any way pessimistic. I am confident that, if only we educationists can carry on our work, each with a clearly defined and attainable objective, we shall at least not fail in carrying out our great responsibilities.

ADDRESS DELIVERED
BY MR. H. E. STAPLETON, M.A., B.Sc., (OXON).

GAUR AND PANDUA

Two Dead Capitals of Northern Bengal Being a lecture delivered at the Senate Hall, Calcutta, on the Evening of February, 2nd 1936.

MR. PRESIDENT, LADIES & GENTLEMEN, AND FORMER COLLEAGUES,

When I was informed by your energetic Secretary, Mr. Chanda, about a month ago, that he expected me to help in this new venture of an Educational Week by giving an address, or reading a paper, on some aspect of Education, I wrote and told him that I thought it would be hardly proper for an ex-Director to plunge again so soon into anything that might be regarded as educational polemics. If any one was interested in my views on the general educational problems of Bengal, I would have no objection to the chapter on Bengal Education that I contributed to the last Year Book on Education being reprinted for distribution to the delegates; but apart from this, I thought it would be better if I tried to indicate to the teachers of High Schools in Bengal one possible way of escape—as His Excellency so felicitously put it the other day—from what we all feel is the often very dull world of curricula and prescribed text-books, and to lead them into the fascinating world of private romance that is conjured up by the word 'Hobby'. Let me tell again in this connection a story that I told the students the other day at the celebration of Founders' Day at my old College—Presidency College.

It is now nearly 35 years since I spent my first vacation in Krishnagar where I had gone to acquire the rudiments of Bengali, as I had been told that this was the best place I could choose for the purpose. The then District Magistrate Mr. Radice, very kindly asked me to come and chum with him, and the very first night he surprised me by asking how many hobbies I had. As I had then been barely four months in Bengal, I had hardly had time even to get the vaguest idea of the country, and having made this plain, I asked him what was the point of the question. His reply, so you will see

later, has actually been one of the determining factors in bringing me back to India after my retirement. He said : 'You will find the years pass all too quickly, and your service in India will be over in a far shorter time than you can imagine at present. You will go back to England after a busy life out here, and find that most of your friends are either dead, or will have lost interest in you. If then you have few or no active interests of your own, you will be so bored with life that you will probably not enjoy your pension for very long. I realised (he said) soon after I arrived in India that as the best part of my life would be spent in India, anything that will keep its freshness throughout my life must be looked for here. I have 3 or 4 of these hobbies now and hope to have several more before I retire, and I strongly advise you to do the same yourself'.

His words made a great impression on me and when, in the strange way we have in Government service, I was soon snatched away from being Professor of Chemistry at Presidency College to act as Principal of the Calcutta Madrasah. I began to utilise my spare time in enquiring what knowledge of Chemistry the Arab conquerors of Europe and Asia possessed in the 8th and 9th Centuries. In this way I began the studies of Arabic scientific literature that have brought me back this year to India, to find what MSS. on the subject are stored in the Libraries of Hyderabad, Deccan ; Bankipore—the Khuda Baksh Library ; and Rampur.

Later, by an even more disastrous move—as I then thought it—I was transferred almost at a day's notice to take over the work of a colleague who was Inspector of Schools in the Dacca Division and had suddenly fallen ill. I went under strong protest, as I had become extremely interested in the work of teaching chemistry and especially in the M.A. students who were then in Presidency College. Two of them are now Professors themselves in Calcutta—one being Prof. P. Neogi who now occupies my first post at Presidency College, and the other Prof. P. C. Mitter of the University College of Science. To pacify me, I was assured—in a D.O. letter from Sir Alexander Pedler, the then Director, which I still possess—that I would be back in Presidency College in less than a year; but unfortunately the Province of Eastern Bengal and Assam was established shortly afterwards, and when I found it was unlikely that the promise could be kept, I again

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began to look round to see what interests I could discover to fill up my spare moments in Eastern Bengal. I found them in the relics of the past of which the ancient capital of Dacca is so full, and in the country of Banga which was to be my home for nearly 20 years. My first teacher was Khan Bahadur Aulad Hasan; and later, through his papers on the History and Geography of Bengal, I also became an enthusiastic disciple of that great German Educationalist and Historian, Henry Blochmann. What therefore I want to do to-night is to give you some insight into that inexhaustible source of interest, viz. local History and Geography, by taking as my ultimate text the two former capitals of Northern Bengal, Gaur and Pandua, with which, in my capacity of editor of the late Khan Sahib Abid Ali Khan's Memoirs of these two cities, I have had a good deal to do. My wife and I, up to the very end of my service in Bengal, always took the opportunity of stray holidays to return to Northern Bengal, and each time we learnt a little more of the still unwritten history of these and other centres of ancient civilisation.

Let me begin by a brief account of, first, the Geography—or perhaps I should say Physiography—of the country with which we are going to deal, and, secondly, the early history of Bengal, which of course was governed very largely by the geography of the country. The determining factors of geography of Northern, and indeed the whole of, Bengal are the rivers that are continually modifying the form of the land areas. These rivers I will now indicate on the map of Central and Northern Bengal thrown on the screen, the first to be mentioned being of course the Ganges, though very close to it in importance is the Kosi River, which runs down from Nepal to the west of Purnea and joins the Ganges a little to the east of Bhagalpur. The Ganges, as you are all aware, has oscillated wildly in its course during the passage of the centuries. Once it ran much straighter across North Central Bengal, through the present bed of the Atrai and thence to the sea via Dacca, which stands, as you will recollect, on the Burhi Ganga. At another—probably later period—it came down the present Hooghly or Bhagirathi River, and if you carry your eye still further to the north of the present entrance of the Bhagirathi River from the Ganges, you will find a former northern bed of the Bhagirathi on the other side of the Ganges, skirting the ruins of Gaur on the West, and being traceable—as the Kalindri—as far to the North West

as Sahebganj. This Kalindri River skirts Gaur on the North, and into it falls, near the village of Old Maldah, the once mighty stream of the Mahānanda, on the banks of which we find the second, and probably much more ancient, capital with which we are to deal this evening, viz. Pandua. Still further to the east is the Karatoya River, on the western bank of which we find the ruins of what is probably the oldest capital in Bengal, Paundravardhana, now called Mahāsthān.

Before going on to historical details, let us first ask what part was played, in the case at least of Gaur and Pandua, by the three rivers, the Ganges, Kosi and Mahananda. Why did the Ganges move first to the Bhagirathi channel and then to that of the present Padma? In the course of a brief lecture, it is impossible to enter into details, but my reading of the changes in the river system is this :

First, as I have already said, the Ganges after emerging from the plains of Bihar continued to run South East along the present Kalindri; then along the southern-eastern course of the present Atrai, and thence, by the Burhi Ganga, to join the Brahmaputra at its former mouth near the old city of Sunārgāon. Nothing definite can be said about the Kosi, but I am inclined to think, from a study of Rennell's Map of 150 years ago, and the existence of a former eastern bed of the Kosi running almost as far as the point at which the Kalindri leaves the Ganges, that the Kosi must have played a very important part in the alteration of the course of the Ganges. If the Kosi was formerly where it is now and suddenly moved to the South-East, nothing is more likely that when it entered the Ganges at its new exit carrying with it the silt cut away from its fresh channel, this silt would tend to choke the former bed of the Ganges and thus force the Ganges to find a fresh course. A modern example of this is the choking up of the Mymensingh course of the Brahmaputra 150 years ago, and the resultant formation of a new course along the present Jamuna River and a fresh junction with the Ganges at Goalundo. There is also the possibility that the name Mahānanda refers to the time when the Kosi may have entered the present Mahānanda close to the Himalayan foot hills, and the two streams came down in a mighty river, washing against the red laterite area of the present Dinajpur and Malda

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districts, and having on its eastern bank where the red laterite ended, the ancient city of Pandua.

Whichever explanation is the correct one, the Ganges was forced further to the West with the preliminary result that it forsook the lower course of the Kalindri, and having cut a fresh course slightly to the west, then found its way down the Bhagirathi and Adi Ganga—the present Tolly's Nullah—to the Bay of Bengal. This would naturally leave a spur of high land at the junction of the Kalindri and the Bhagirathi, and as we know, by the discovery of Dharmapal's Copper Plate grant of C. 800 A.D., that the area on which Gaur now stands was then inhabited; we may guess that the main alteration in the course of the Ganges took place shortly before this date. Later, in Hindu (Sena) and Moslem times, after Gaur had been established as a centre of population—first as Ramāvati, and then under the name of Lakhnauti—the Ganges moved still further West, and finally settled down into more or less its present course. The cutting away of so much of the land at the base of the Rajmahal Hills was probably the determining factor in the gradual silting up of the Bhagirathi, north west of Murshidabad, and the final desertion of the Bhagirathi channel in favour of a fresh channel, viz., the present Padma, which runs more or less parallel to, but further south of, the oldest Bengal channel of the Ganges. The change must, however, have been very gradual, for as late as the 17th Century, the Bhagirathi was a broad stream as far to the north of Calcutta as Triveni and Satgaon.

As for the last river I mentioned, viz. the Karatoya, it hardly enters the picture, except that the decay of a far older capital than either Gaur or Pandua, I mean Paundravardhana—the present Mahāsthān—was probably due to the gradual silting up of the river on the bank of which it stood, owing to the diversion of the upper waters of the Karatoya into the Teesta.

I will next try to give you a brief summary of the history of Bengal down to the date of the foundation of Gaur in Pala times, with just a few references to subsequent events down to the Muslim conquest of Bengal. Until only 3 years ago, the history of Bengal prior to about 450 A.D. was a complete blank. From certain Copper plate grants found in Faridpur and described by Prof. R. G. Basak—now of the Presidency College—it was

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clear that Bengal was included in the Gupta Empire between 432-543 A.D. but for anything before that, we had only a few traditions to go on. Then in January, 1933, as the result of the papers read at a Symposium on Northern Bengal History, held in the rooms of the Asiatic Society of Bengal, a great step forward in our knowledge occurred. In the first place, Mr. N. G. Mazumdar's note on certain Gold Kushān coins, found at Old Maldah and Mahasthan, showed that in the time of Vāsudeva (185-220 A.D.) Northern Bengal was probably included in the great Kushān Empire, with its capital as far away as Peshawar. Secondly, in 1928-9 a terracotta plaque (showing an archer shooting deer from a four-horsed chariot) had been discovered at Mahāsthān by the Archaeological Department, and in 1932 Prof. S. K. Chatterji also discovered at Pokharna (the ancient Pushkarana) in the district of Bankura in Western Bengal, a plaque of a standing Yakshini. As both of these can only be assigned to the Sunga period (2nd and early 1st century B. C.) their discovery suggests at least the likelihood that the whole of Northern and Western Bengal formed part of the Empire of the Sungas who, under Pushyamitra, took over the remnants of the Maurya Empire and reigned from Pātaliputra from about 185 B.C.

Finally, the announcement by Prof. D. R. Bhandarkar at our Symposium, of the discovery at Mahāsthān by the Archaeological Department in the 1931-2 working season, of a fragmentary inscription of Brahmi script of the Asokan rock and pillar Edicts, and his reading of the text not only settled once and for all that Mahasthan represents the ruined site of the historic capital of Paundravardhana, but also showed that Northern Bengal must have been included in the Mauryan Kingdom. Further interesting facts that emerged from the inscription were (a) that there was then a local (or Imperial) coinage and (b) that the name of the people to whom advances of money or paddy were directed to be made was SAMVANGIYA, or Allied (tribes called) VANGIYAS. This supplies evidence not only that coinage was struck in Mauryan times—this being in all probability the coins known as Punch-marked coins—but also that the name VANGA was in use for the country of Bengal as long ago as the time of Asoka (say 250 B.C.).

We can thus now state with considerable certainty that (a) Bengal was included in both the Maurya and Sunga Empires between 250 and 80 B.C.

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(b) That it also formed part of the still more extensive Kushān Empire at least in the time of Vasudeva (i.e. up to 220 A.D.).

(c) That from the occurrence of early Gupta gold coins in the vicinity of the two-mile-square fortification at Kotwālipāra in Faridpur, the discovery of other Gupta coins in both Northern and Western Bengal, and, finally, the Damodarpur and Dhanaidaha Copper Plates described by Prof. Basak, lead us to conclude that Bengal was administered by local Governors, acting under the instructions of the Gupta Emperors of Pataliputra, until at least 550 A.D.

Subsequent to the downfall of the Gupta Empire until the rise of the Pāla Kings we have only a few facts to go on.

From the accounts of the Chinese pilgrim Hiuen Tsang, we know that Bengal and Northern Madras for a short time between 600 and 610 A.D. was ruled from Rangamati on the Bhagirathi (in the present Murshidabad district) by a local King called Sāsanka, who struck coins very similar to those of the Guptas. He was driven out of Bengal by a combined invasion of Sri Harsha of Kanauj and Bhāskara Vārman, King of Kamrup, but retreated to Orissa, or Ganjam, where he continued to rule for at least another ten years. At the time of Hiuen Tsang's visit about 640, Bengal appears to have been under the rule of Bhāskar Vārman, but after the death of Sri Harsha in 646, the whole of Upper India seems to have fallen into a complete state of anarchy. The chief evidence of this in Bengal is the small number of what are known as Pseudo-Gupta gold coins, which are struck in debased metal and are only caricatures of the finely struck Gupta coins. There have been found chiefly at Sabhar (near Dacca) but a few specimens have also turned up in Khulna and, I believe, in North Bengal as well. They were evidently struck by local Kings. We also, hear vaguely of invasions of Northern Bengal (then called Gaur) from Kanauj and Kashmir in the first half of the 8th century and even another invasion from Kāmrupa. Finally, about 765 A.D. the people of Bengal, being heartily sick of the prevalent anarchy and constant invasions from outside, decided that the best thing to do under the circumstances was to place themselves under a strong King, in the person of the lowly-born Gopāl. He, it was who established the dynasty known as the Pāla Dynasty which continued to rule Bengal—wholely or in part—for about 4 centuries. The present site of Gaur was made their capital under

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the name of Rāmāvati, about 1077 A.D. Then, about 1140, Bengal passed into the hands of the Sena Kings, who appear to have sprung from some Southern Indian chieftain who elected to remain in Rađha after the invasion of Rajendra Chola in 1020. A.D. The Senas continued to reign from Gaur (under its fresh name of Lakshmanāvati or Lakhnauti) till 1202 A.D., when Muhammad-i-Baktiyār Khilji drove away Lakshmana Sena to Eastern Bengal and established Muslim rule over the rest of Bengal. The subsequent history of Bengal until the time of Akbar almost entirely centres round the two capitals that I have taken as pegs on which to hang this evening's lecture.

I now come to the final, and probably most interesting stage of my lecture. Now I will attempt to give you some idea both by verbal description and through lantern slides of the historical remains that can still be seen at the sites of these two former Capitals of Pandua and Gaur.

PANDUA, OR PANDUNAGAR.

In early Muslim times, Pandua was known as Firuzābād, which indicates that it was established as his capital by Shamsuddin Firuz Shah about the time when he began to extend his territory by the conquest of Sylhet in 1307 A.D., but local tradition as well as both topographical and historical evidence point to it having been a very ancient Hindu city named PANDUNAGAR. This name (which was temporarily revived in 1418-19, as we know from the coinage of Raja Ganesh and his son Mahendra) is accounted for by a story that the city was originally founded by a Raja of the Pāndava family of Indraprastha (Old Delhi). The Sataisghara Tank in the 'Palace' area is said to have been first dug by Arjun of this family, and a building close by is still known by the name of *Pāndap Rājā Dālān*. The chief items of evidence for the early Hindu capital is the existence of an enormous (now dried-up) N × S tank, 625 yards in length by 275 in breadth, which lies immediately to the north of the Palace area : the name DAMDAMA attached to a *mauza* a little to the North-East, but within the perimeter of the old city, which probably indicates the site of the Citadel of the Hindu Kings, though all trace of it has now disappeared, owing to the materials having been used for building purposes by the Muhammadan Kings : the facts that the

Adina mosque seems to have been originally a Hindu temple, and that one of the pillars has a Hindu name *Indranāth* inscribed on it in 9th century characters; the extraordinary brick-cored walls of the old city which cover over 20 miles and which are typical of the Hindu cities found in this part of India—these walls have recently been revealed by air survey photographs; and, finally, the fact that most of the large tanks within the walls are N × S ones, and, therefore, of Hindu origin.

The object of historical interest that have been so carefully preserved at the instance of Lord Curzon by the Archaeological Department are all grouped near the 'Palace' area along two miles of the brick-on-edge *Badshahi* road (from Gaur and Old Maldah to another old Hindu capital at Devikot) that runs in a north-easterly direction from the Southern Gate past the Adina Mosque, and finally emerges 5 or 6 miles away through the Northern rampart at *Garh Dwār* in the *mauza* of Burjpur. This may be seen from the map I will now show, which was constructed from the air photographs, taken in 1929 in connection with the Settlement survey of Maldah District. Coming along the road from Maldah, or by the wayside-station road, the first buildings that are met with, are, on the right, the *Bari Dargah*, or Shrine of Shah Jalāl, the warrior Saint of Sylhet, and, on the left, the *Chhoti Dargah*, or Shrine of Nur Qutbul-Alam, the saintly King-Maker, who played such an important part in the events that resulted, in the first quarter of the 15th century, in the temporary accession to the throne of Bengal of the two Hindu Kings I have already mentioned, and subsequently the re-establishment of Muslim supremacy under Jalāluddin, another son of Raja Ganesh, who had been converted to Islām. The first slide gives some idea of the Chhoti Dargah enclosure: and the second shows quite a good example of the very latest type of Moslem architecture in Bengal—the mosque of Bibi Shams an-Nahar, 20th in descent from Hazrat Nur Qutbul Alam, who is married to Dr. Muhammad Siddiq of Calcutta and who has two sons to carry on her line.

Just beyond the *Chhoti Dargah*, on the left of the road, we find the *Eklakhi Mausoleum*, possibly built by Raja Ganesh, and the burial place of his son Jalāluddin Shāh, and grand-son Ahmad Shah, who successively ruled over Bengal in the first half of the 15th century. The Mausoleum is a brick building with a single dome, and the ascription to Raja Ganesh is confirmed

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by the fact that the stone decorations at the four entrance doors show traces of Hindu images—now partially obliterated : as well as the still current local tradition that this Raja, after making himself King of Bengal, converted the Adina Mosque, (which lies only a short distance further along the road) into his *Zemindari* office. The plan of the building is the same as the so-called *Chika Mosque* at Gaur, which was, therefore, presumably erected at the same time—possibly also by Raja Ganesh or some member of this family.

Just behind the Eklakhi Tomb, we find the *Qutb Shahi Mosque*, which seems to have been built by some descendant of Nur Qutbul Alam in 990 A.H. (= 1582 A.D.), and is, therefore, comparatively modern. An alternative name for it is the *Sona Masjid* as, like the two Sona Masjids of Gaur, its domes (which have now disappeared), seem to have originally been gilded. It is very similar in appearance and plan to these mosques, though much smaller than either of them.

Lastly, about a mile and a half north-east of the Ekhlaiki Tomb, and on the right hand side of the road, we reach the famous Adina Mosque, constructed by Sikandar Shah of Bengal between 766 and 776 A.H. (= 1364-74 A.D.). As already noted, he seems to have utilised a previously existing Hindu temple for the main portion of the mosque, but extended it towards the north, and provided a great Court on the East. The entire area of the Mosque, including its once cloistered Courtyard, measures 507 feet from north to south, and 285 feet from east to west. The present appearance of the actual mosque may be seen from the slide showing the Central Hall with *Qibla* and Pulpit, while the massive character of the pillars may be understood from the other slide, giving a view of the interior, looking towards the Central Hall. To the right of the slide is just visible the extraordinary *Bādshāh ki Takht*, or raised room that was provided for the accommodation of the King and his family during services. As 'Abid' Ali Khan points out, this violation of the democratic principles of Islam (which is also found in one or two of the mosques at Gaur) differentiates Bengal from all other parts of the Islamic world—unless, indeed, the name is misleading and the *Badshah ki Takht* was only intended for the accommodation of the ladies of Sikandar Shah's *zenāna*. Sikandar Shah's grave (in a raised chamber outside the *Bādshāh ki Takht*) is now empty, and the grave stone has disappeared ; but the inscription put up by Sikandar while the building was

under construction—said to have been written by the Sultan himself—is still to be found on the western wall of the mosque. Its beautiful writing can be understood from the lantern slide; and another example of the high standard of inscriptions that continued for at least 100 years later may be seen in the other two slides.

GAUR

The present appearance of GAUR as a heavily embanked area, $12\frac{1}{2}$ miles long from north to south and two to three miles in breadth, may be gathered from the first slide; but although the few travellers and historians that mention GAUR agree that it was a densely populated capital (with over a million inhabitants in the first half of the 16th century), it is probable that the whole area was never occupied at the same time; but rather originated at the North (in the vicinity of *Ballāl Bāri* and the mile-long *Sāgar Dīghi*), and slowly spread southwards, by successive additions by later Kings to the embanked area. Local tradition, indeed, suggests that the oldest settlement was 8 miles to the north-west of English Bazar at Pichhli, the name which is explained by Francklin as being in full *Pichhli Ghātāl* (i.e. the furthest *Ghāt*, or boundary, of GAUR, in that direction): and indications of the correctness of this are, firstly the occurrence there of one of the oldest Muslim inscriptions in Bengal, in which reference is made to the Sultan Iltutmish of Delhi (1210-1235 A.D.), having ordered some building to be erected on the spot: the beauty of the inscription, which records the repair of the building by *Mas'ud Shah Jani*, a *Malik* (Governor) of Bengal under Nasiruddin Mahmud Shah (one of Iltutmish's successors at Delhi), may be seen from the slide. Secondly, the strategic importance of the site to anyone holding it against an invader from the West is obvious from its situation on a promontory of land formed by a bend of the river Kalindri, which (as I have already pointed out) represents a former course of the Ganges. This importance was recognised by one of *Mas'ud Shah's* predecessors *Ghiyāsuddin 'Iwaz* (1211-1226), as he constructed the fort of Bisān Kot on the opposite side of the river to Pichhli. There is also the tradition recorded by Buchanan Hamilton that Pichhli was the capital of King Adisur, who is said to have imported Brahmins from Kanauj; while the existence—nearer to *Ballāl Bāri*—of the village Arapur—the original name of which is

said to have been *Arhatpur*—carries the mind even further back to Buddhist times. Be that as it may, after Lakshman Sen had been driven out of GAUR, the Lakhnauti of the early Muhammadans seem to have been located for some time at least in the vicinity of the *Sāgar Dīghi*, and there is evidence, that, under the name of Muhammādābād (probably called after the Delhi Emperor Muhammad bin Tughluq 1320-1551), a mint continued to exist there until the beginning of the 16th century. However, after the disappearance of the family of Raja Ganesh, Nāsiruddin Mahmud Shāh (1442-59) seems to have decided to build a capital further south, and, as may be gathered from the Palace inscription of his son Barbak Shah (1466 A.D., as recorded by Francklin) as well as architectural considerations, it is fairly clear that Mahmud Shah was the Sultan who erected the existing *Citadel*, 7 miles south of *Sagar Dīghi*.

The best centre from which the ruins of GAUR can be visited is the District Board *Dak* Bungalow at Piyasbari; but the distances are so great that the aid of either bicycles or a motor car is essential. Taking first the road to the Citadel, we soon come to what may be regarded as the finest of all the extant buildings, viz. the *Bāradwāri*, or Great Golden Mosque, with its even more wonderful Courtyard Gateway, built by Nasrat Shab of the Husaini Dynasty in 1526 A.D.

The Mosque is a massive rectangular building of brick faced with stone, 168 feet by 76, which, as already noted, when dealing with the similarly-named mosque at Pandua, owes its epithet 'Golden' to the 44 domes that roofed it in having been originally gilded: but only 11 of these, over the corridor in front, now exist, and the gilding has disappeared. The mosque had a Ladies' gallery in the North-West corner, as indicated in the plan. I think all my audience will agree, after seeing the slide showing the Gateway, that for effective simplicity of style there are few buildings in India—one might almost say the world—that can rival this supreme effort of the Husaini architect.

A little way further towards the south we pass through the *Dākhil Darwāza*, or Main Gate of Nāsiruddin Mahmud's Citadel, and shortly afterwards reach the quadrangular Palace Area with its 42 feet high wall, of which I give a slide from a photograph I took at my last visit, in 1933. It is a thousand pities that, owing to the financial stringency in India, and consequent

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cutting down of the Archaeological Department's grant, the work of keeping the wall free from the ravages of the banyan tree has had to be suspended, for—as will be evident from the photograph—without proper care, this amazing record of the resources of the Bengal builders will soon collapse. The wall is 15 feet broad at the base, decreasing to nearly 9 feet at the top.

Of the many other interesting buildings in the vicinity of the Palace Area, I have only time to show a very few slides. The first one is of the buildings in the enclosure of the *Qadam Rasul Mosque*. On the left, we see Nasrat Shah's Mosque (built in 1513 A.D.) which contains a stone foot-print of the Prophet, said to have been brought from Arabia. The building on the right is an extremely interesting example of the indigenous architecture of Bengal, modelled on a bamboo hut; it was evidently once a Hindu temple, but subsequently became the burial place of a son of Mir Jumla's Commander-in-Chief during the Muslim invasion of Assam in 1662-3.

The next slide shows the small *Gumti Gate* of the Citadel which is noteworthy for its corner pillars being profusely ornamented with coloured enamel bricks, similar to those of the Lattan Mosque which is also close at hand. This gate is situated within 100 yards of the so-called *Chika Mosque* that I previously referred to when dealing with the Eklakhi Mausoleum at Pandua, and has now been converted into a much needed Museum, in which stray local inscriptions and images can be preserved. The other slide gives a characteristic specimen of a *Tughra* inscription of Yusuf Shāh, son of Bārbak Shāh, son of Mahmud Shah, of the year 1451 A.D. from the neighbouring *Darasbāri Mosque*, which was apparently the mosque attached to Husain Shah's Madrasah, of which we still have another record (dating from 1582 A.D.) now found on the enclosure wall of a mosque at English Bazar, in which this King is recorded as Conqueror of Kāmru (Assam) and Kamata (the present Kuch Bihar), and a *hadith* of the Prophet: "Seek after knowledge, even if it be in China" is given.

To complete this hasty survey of the antiquities of GAUR, I show two slides of the *Chhota Sona Masjid* of Firuzpur, 3 miles south-east of the Citadel, in the last area of all to be embanked and colonised. It was built by Husain Shah (1493-1519), the Arab founder of the Husaini Dynasty of Bengal, and has more or less the same structure as the Great Golden Mosque of his son

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Nasrat Shah, but is noteworthy for the example of the Bengal type of roof in the centre, between the two domes to the right and left of the front corridor, and, particularly, for the very fine carving round the principal doors of the Mosque which can be seen in the second slide.

This brings me to the close of what I have to say. I hope I have been able to give you some idea of the intense interest that can be derived from the study of the relics of the past which—in spite of the ravages of time, the climate, and vegetation—can still be found in every part of Bengal. Many of you have, I believe, in your school libraries a copy of the very cheap issue by Government (the cost is only Rs. 5) of the Late Khan Sahib's *MEMOIRS OF GAUR AND PANDUA*'. With it in your hands, you will find a visit to these two old capitals a most fascinating and instructive experience. Try to take your boys with you, so that they too may get some idea of the ancient glories of Bengal. And above all, I want to urge the teachers of schools in the Mofassil, and especially those in Northern Bengal, to look out for inscriptions and images in the neighbourhood of your schools and, if possible, to arrange that they are safely lodged in some local Museum, such as those at Rajshahi and Dacca, or, for Western Bengal, in either the Indian Museum, or that of the Bangiya Sahitya Parisad. The history of Bengal is still most imperfectly known : and if I have been able to encourage even a small fraction of my audience to-night to recollect the motto of your University—the 'Advancement of Learning'—and to take up as a hobby the study of your local Antiquities and local Geography, I shall feel amply repaid for any trouble I have been put to in preparing this lecture.

Education and Culture was the subject of the Address given by Dewan Bahadur Ramaswami Mudalier, in connection with the Bengal Education Week.

The Dewan Bahadur stressed on the importance of having an independent habit of thinking and an open mind as being one of the fundamentals of true education. The hallmark of University and the mere accumulation of knowledge, he said, were not the principal aims of education. No man could claim to be cultured or educated unless he was able to have a free and open mind, a mind which would examine questions on their merits and not one which was clouded by preconceived ideas. Freedom of thought was what the country required to-day more than anything else.

Speaking to a Bengali audience, the Dewan Bahadur asked them to take into consideration the difference between Bengal of to-day and Bengal a quarter of a century back. Time was, he said, when all the new ideas and great thoughts came from Bengal. It was said then that "what Bengal thinks to-day the rest of India thinks to-morrow." How many of them were prepared to say that to-day?

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But Bengal, he believed, had got its mission still to fulfil. Its past had been great but its future would be greater still, if their youngmen would go to life with true culture behind them. What was wanted was that culture which would lead to independent habit of thinking and that knowledge which would bring an equipose of mind. Their youngmen should not be carried away by sentiments. They should have knowledge to think for themselves before coming to any conclusions and should not be at the mercy of every designing individual. With their culture behind them Bengal's contributions would be still greater than it had ever been in the past.

Although he was proud of his own province, the Dewan Bahadur concluded he was free to admit that India still required the lead of Bengal so that her progress might be well maintained.

ADDRESS DELIVERED BY PROF. SHAHID SUHRAWARDY, OF THE CALCUTTA UNIVERSITY

ART AND EDUCATION

Out of the various subjects proposed to me for this evening's address by my friend, Mr. A. K. Chanda, your General Secretary, some of which would have been more attractive for you and easier for me to discourse upon, I have deliberately chosen the connection between Art (a word I shall use in the sense of the Fine Arts) and Education because of its importance in the scheme of cultural reconstruction which must be the ultimate aim of all national education. I welcome this opportunity of being able to present before you teachers, who have gathered in such large numbers from all parts of Bengal and who have the power to exercise your influence for good or for evil on tender sensibilities, a point of view which unfortunately is often neglected when we appraise the true purposes of education.

To begin with, let us be frank and admit that, whatever voices be raised in the wilderness, all real interest in India to-day is concentrated solely in the political struggle. The best brains of the country, all the passion, temperament and energy, all the capacity for intransigence or accommodation are engaged in trying to rear up the scaffolding of a political edifice. In the zest of that struggle, in the bickerings and injustices of political life, our leaders for the most part are utterly unmindful of the form and design with which such a building should ultimately be invested. Is it to be European, its facade subjected to the rhythm of fenestration, an efficient, sanitary, ultra-modern spacious habitation; or is it to be a palace like Man Singh's at Gwalior, cool, semi-subterranean, a place for contemplative repose and luxury after the heaviness of wars, with painted lintels and carved columns, or shall it be arched, turreted, firmly planted on the earth, solid on thick stone plinths, like the vigorous defiant palace-fortresses of the Pathans at Mandou? Dispassionately watching events I am afraid it is more likely to be, as some of our public and private buildings are to-day, a hybrid structure with gothic openings, French mansards, moorish pilasters stuck into Roman vaults, Hindu

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pavilions stretching over Ionic pillars, a faithful reflection of our minds, tawdry, incoherent and joyless. If such is the indifference of our political workers to the architectural unity of the edifice they wish to construct, how can one wonder that they have little thought for the other than material life of those who will occupy it in the future? I realise there is a time in the life of every country when the creative energy is inevitably devoted to political re-adjustments. May be ours is going through this phase and there are reasons, historical and economic, which might explain our obsession. But the claims of culture are equally urgent and have been regarded as such during the bitterest period of political struggle in those countries which usually are held up to us as our ideal. To those who are deep sighted, or who like you and me are out of the melee and have some time for reflection, the activity now prevailing in India amounts to the elaboration of a frame, to borrow an analogy from my subject, without knowledge of the picture which it is going to enclose. It is therefore essential for us to have an accurate and correct estimate of our national cultural assets, a true apprehension of our originality and our contributive value to the world before we definitely fix on the form which our political strivings should take. I am convinced that the most ardent of our Westernisers will admit that political freedom is not worthy of attainment if a country like India, which for so long has been an emporium of ideas, style, colour and artistic technical inventions, should be one among many where drabness is identical with the achievements of democracy. We must hence strongly condemn our nationalists who, after the partly successful revival of our textile handicraft due to Swadeshi lost the miraculous opportunity offered to them by circumstances for the resuscitation of Indian designs and allowed the movement to degenerate into a competition for possessing the Indian market with the help of imitations of low European models. Their action would have been more in consonance with the pathos of their declared faith had they possessed the Indian imagination instead by encouraging our traditional taste which has been for centuries the envy of the discerning and the sensitive in Western countries.

At the present moment, owing to unfortunate economic conditions, the education that is generally advocated by those in authority is that of a narrow utilitarian scope. It is possible that for a short transitory period and under

the compulsion of unusual circumstances this is the kind of education which is needed by the province and the country. But the ends of education properly understood are surely other than to befit a person solely for a lucrative vocation. Even in a strictly utilitarian conception of education it might cogently be argued that the equipment needed for a successful vocational career should necessarily include a knowledge of those external factors which condition one's labour, and which relate it to the outer world. We know from experience that a background of culture, the habit of reflectiveness, adaptability and the faculty of critically revaluing tradition have always distinguished the good craftsman from the bad. Hence, if we believe with Plato that education does not consist in a process of acquisition but in the development of powers already existing in us, we shall find that nothing is useless which helps to broaden our vision and encourages our sympathies. The artistic instinct in us is one of those latent forces to which Plato refers. From our childhood by the slow process of recognition and differentiation, our vision gets acquainted with the particularity of forms, and the next stage in our development logically leads us to a compelling necessity to exteriorise our impressions of the outer world with the help of symbols and signs. As we grow older we strive to attain the maximum of completeness available to us in interpretation and thus it happens that very early in our years we attempt graphic or sonorous descriptions of things we have seen or felt. This urge for giving form to the accumulation of our observations of the life around us is also noticeable in the case of the primitive man, whose first gratuitous activity consists in perfecting the shape of his tools and in inscribing on the walls of caves with a rare avoidance of rhetoric, which so often mars the art of later days, his pictorial impressions of animal movements. The faculty of visual relatedness in the midst of the divergent phenomena of life and this early striving after mastery over matter, which when it attains to realisations we call technique, lie at the base of the artistic creative urge. As we advance in years or as the early unions of man develop into complex entities the vividness and immediacy of our reaction to the outer world ceases and the forms that we find in use about us impinge upon our minds. It is thus that tradition grows, for the individual abdicates his vision to the community. Having admitted that exteriorisation in forms is an inherent necessity in man we may

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go a step further and maintain that from our earliest years we experience a pleasurable reaction to pleasant forms and colours, which themselves are un-contoured forms in space. This to begin with is individualistic, but, strange to say, when we grow up, we often find that the race or tribe in which we are born has also had similar reactions and tried to express them in ways we ourselves would have chosen. In milieus, where tradition is a living influence, we grow gradually accustomed to take pleasure in these forms as they adequately answer to our need for integrity of texture, rhythm, proportion or phantasy. These needs differ with different races and countries, and therefore the art forms of one country do not necessarily stand superior to those of another, for the only distinguishing feature which enables us to establish a hierarchy among the achievements of art in different centres, is the continued presence of freshness of inspiration, vividness of representation and inventiveness in execution. No other criterion rules æsthetic judgment. If you believe with me that the apprehension of Beauty is a source of pleasure (I use the word in its Aristotelian sense of rational enjoyment), that its contemplation gives us an insight into the Ideal Form, that it enriches our spirit and helps us to discriminate between evil and good as the ancients held, that it develops in us the sense of tact and balance, you must admit that the results we obtain are the same as those at which all true education aims. To-morrow from this very place you will hear my friend, Professor Satyen Bose, the brilliant Indian scientist, tell you of the supreme value his subject has for education. I do not dispute his claim, but I hold that the development of the human spirit and the joy which is the ultimate goal of our mental strivings is not exclusively distilled from any one branch of knowledge. The quest of beauty is as much a search after truth as the pursuit of her by the scientist or the philosopher. I hear it too often contended that a man might be educated and cultured and yet not be responsive to Beauty. This can only mean that he does not derive satisfaction from outward forms but from the cogency of intellectual systems, whether of philosophy, law, or science. But the need remains the same, the need for symmetry, balance and coherence. If it were possible to give visual or audible forms to these systems of thought of experience, they would evoke appreciation in the same way as music, architecture, painting or sculpture. In fact, it is impossible for men, as normal beings to escape in any of

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their activities which aim at perfection from a feeling, if not identical akin to, that of aesthetic satisfaction.

Having discussed so far the connection between Art and Education, a fact now accepted by educationists in Scandinavia, Czecoslovakia, Japan and the United States of America to name but a few countries which I have deliberately chosen because of the large diffusion in them of technical vocational training, I regret to say that in our present system of education the teaching of art occupies an almost non-existent place. It is roughly ten years ago that the late Sir Ashutosh Mookerjee introduced the subject of Fine Arts in the curriculum of our University's Post-Graduate Studies. The students that come to us have no initial preparation and for the first year are wholly at a loss to orientate themselves in the midst of examples that illustrate the many-sidedness of ancient Indian artistic achievement. Some years ago a scheme beginning at the Matriculation stage for graded acquaintance with masterpieces of our own art as well as with those of other nations was suggested to the University by Mr. O. C. Ganguly, the eminent art-critic of Calcutta, but, as far as I know, no steps were ever taken to put it into execution. We must confess that the passionate advocacy by Coomaraswamy and others, Indian and European, of the place of art in national life has miserably failed in our province. It is true that in your schools you teach drawing, clay modelling and fancy needlework. But these are mere rudiments and only in their developed state of picture, sculpture and decorative design might be called art. Moreover, your aim in teaching these subjects is neither to stimulate artistic creation, nor to prepare your pupils for a craftsman's vocation, but merely to help to concentrate their attention during class hours and to develop a dexterity of fingers. Dexterity alone is but a far prelude to skill and has only a disciplinary value.

You will ask me then, given the present state of things with little hope of change in the near future, what is one to do with the teaching of Fine Arts in the school. I am conscious of the difficulties. I realise that art will never occupy the place in our society such as it did in the past of our country unless a complete change occurs in our mental and moral outlook. Our task is colossal. We have to transform our entire surroundings, to get rid of the ugliness with which we encumber our houses and persons, to free our brains

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and hearts from both the disparagement and the undue adulation of our cultural heritage, to train the mind to detect achievement in terms of the creative intention, and specially to cultivate a sympathy with forms that at first sight appear unusual. I know the sense of discomfort that one experiences in the presence of unusual forms, how the eye is more conservative than any other part of the human organism and what a slow process is needed to disengage the elements of beauty in objects which testify to an unwonted phantasy. But if one is patient and humble as one must be before manifestations of human temperament and talent, if one is successful in penetrating to the secrets of the mind which creates a given image, the image will live and illumine one's spirit. The attitude of piety I suggest is necessary for the understanding of every art and especially of our own, for we are in a state of moral confusion far worse than any other people. We are neither orientals nor Westerners. We have been taught Western literature and our minds have been filled with Western imagery. Our education has had a background of a foreign landscape. The result is that we have no comprehension of either Western or Eastern forms. The blight of bad taste has fallen upon the representations of the gods and goddesses themselves that are worshipped. The sources of Indian Art have completely dried. The grand tradition of our medieval sculpture, which knew how to inform stone with miraculous movements in order to portray the lives of gods involved in human relations, that splendid realisation of the Indian ideal of god-man, unparalleled in the world's art for plasticity and dramatism, has been allowed to lapse into oblivion. We are equally ignorant of the masterpieces of Western Art. We do not know the compassionate tenderness of Early Christian images, the pageant of Byzantine mosaic, we have not even heard the names of those magicians of the Renaissance, of Bellini, Mantegna, Simeone di Martini, Pierro della Francesca. Art study and art appreciation is banished from our lives. We not only surround ourselves with ugliness but are proud of it. We even consider it to be a help in the intellectual and spiritual development which is claimed to be peculiarly ours. In our society to-day the slovenly, the unkempt and the unseemly is held up not only as an object of admiration but of emulation.

Of course you cannot help all this. Your school houses may sometimes be practical but they have been built by the P. W. D., and I know in what

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relation that Department stands to beauty. And this has occurred in a province where folk-taste has given the most exquisite of lines to its humblest dwellings. Your economic position is such that neither you nor your students can travel and get acquainted at first hand with the monuments of our art. Your libraries, if you have any, are not provided with books, for the most part expensive, which contain illustrations of art objects. Your knowledge of what has been achieved in the past and is being attempted now is necessarily based on cheap unconscious reprints which appear in the so-called progressive press. Even if some of you are endowed with artistic sensibility and interest you cannot help your pupils because they already come to you with their visions distorted from the primary schools. The situation is really hopeless and no remedy will avail unless a courageous remodelling of our educational policy involving the lowest stages of instruction will enable every important achievement of our national culture to find its rightful place in the curriculum of our studies.

Even in the educational organization such as it exists to-day, I would like to suggest to you two ways in which you could encourage acquaintance with art and help to develop the artistic leanings of those who are under your charge. The first method would be to treat art as a subsidiary to history and the second directly to help to conserve whatever remains of Indian art traditions from disappearance in the localities from where you come. I shall treat both subjects separately. Until recently, since the discovery of Indian art and the movement for its preservation, Indian history, especially of the ancient period, was but a dry narrative of political events. Art objects not only illustrate cultural contrasts and fusions, the conflicts of influences, the stories of racial supremacy, but reveal changes and evolution in taste due to newer spiritual and material demands. They visually illumine and correlate the facts of history and make them alive. How much better do we understand the story of the mission of faith sent by Asoka to Antioch and Egypt, when we regard the monumental examples of the art of that period deriving its traditions from the Great King of Kings whose satrapy, till late, much of the Buddhist kingdom was. Whatever one might think of the theory of the importation of Iranian workmen into Pataliputra, one cannot fail to see in the vast Mauryan Empire, with its culture prestige and military prowess, a conscious resurrection of the glorious traditions of the Achaemenians destroyed by Alexander. In the elegant terra cottas

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left by the Sungas, replete with delicacy of execution and a certain languorous tastefulness, we see the luxury and decadence of court-life during a period of comparative tranquility, while the Bharut-stupa shows us the wealth and prosperity and the native personal vanity of the middle classes of those days paying to get their portraits sculptured in awkward devotional poses. In the art of the Kushans you easily detect the throbbing life of the time, their continental orientation, the foreign racial taste reminiscent of the days of exile before they reached Bactria, the fine modelling and quick observation of a youthful, vital, energetic people, who not so long ago were nomads. What can better illustrate the organic fusion under one supreme sway of conflicting racial contributions, the splendour and the wisdom of the Imperial Guptas, their humanism, their solid international and colonial status than the examples of our classical sculpture? How can one share in the religious ecstasy of our Middle Ages without Ellora? Coming down to a much later period, in Mogul painting we see the evolution of those hardy fighters of Central Asia, descendants of Chenghiz and Timur, transformed under Indian conditions and Persian influence, unmindful of nomadic tents and traits of tribal life which so largely figure in their earlier works, becoming the most magnificent of Indian Emperors and vying with the Safavids to establish their claim to be the only worthy successors in the East of the brilliant Sassanian monarchy. And in Rajput paintings is there not the sheltered, idyllic life of a proud heartened with outbursts of Vaishnavite lyricism, penned in by outward pressure, but gathering in silence and isolation strength for the final assault? One could go on enumerating instances and it is for you to take advantage of art objects to reconstitute Indian History, to bring out its truth and to dispel with their aid much that has accumulated of bias and unreliable interpretation.

The second way you could help the propagation of art study is by conscientiously trying to revive our decaying handicraft. Those of you who come from the mufassil and especially those who are teachers in village areas have the occasion of being in touch with local productions. I hope you have under your charge a number of pupils who will not come to this town for university degrees and swell the company of the unemployed but will be content to turn their energies to more profitable occupations. Before advising a pupil to take up a vocational career it is always better to choose one who

has hereditary advantages in that direction. Once you know his decision it should be your duty to get him acquainted with indigenous patterns and colours and to encourage in him all efforts at originality but after you have carefully grounded him in the tendencies of local needs. I do not think that where handicrafts still live there is a risk of your pupil turning out completely new designs which will have no commercial value ; he would rather content himself with variations on accepted motifs, for once a child's eye has been trained to beauty and rhythm, he is not likely to diverge from a satisfying standard. But the difficulty is that in most localities, through want of patronage, handicrafts have been allowed to die. In other countries of the world, school-masters have proved most helpful in resuscitating them by suggesting and propagandizing their consumption in preference to machine-made objects where utility and cheapness more often than not destroy the elements of beauty. I shall not tire you by citing the ethical and cultural advantages of handicraft over machine-made articles. A little thinking on your part will convince you that apart from the intrinsic merit of the personal touch, even in articles which are made on the mould, the conditions under which handicraft is produced are more humane, healthy and moral. A village school might serve as a nucleus of local handicraft products and by exchanges and loans might enrich its collections. I am on principle not much in favour of museums, even school museums, for it is better that these articles should be in constant use in the home and not lie relegated to cupboards. But at a time when arts are becoming extinct there is no other way left but to save them by collecting them in museums. It is indeed sad that one should have to suggest these directions to an audience belonging to a province the folk art of which is the backbone of its culture and which can rival any in decorative grace and vitality.

Before I conclude, I shall ask your permission to digress and take the liberty of warning you against a common danger in the teaching of art. The straining of the art sensibility of a child is an extremely delicate affair. Whatever else one does, one should not make one's pupils conscious of artiness, of a deliberate intention to produce beautiful effects. In art, as in religion, the best is always he who is not constantly mindful of meritorious deeds. Otherwise you are bound to indicate prigishness in your work and in art criticism there is hardly a worse characterisation. I would not like our handicraft to take on the

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colour of a revival such as that of the William Morris cult in England which has degenerated into snobbish products made in the workshops of Chelsea and Chipping Campden for the arty middle-class. We should be warned by the fate of an intentional revival nearer home, by the example of the Bengal School of Painting, where with the exception of a few outstanding figures, there is a straining after pictorialness and prettiness so utterly at variance with the bold, unassuming masterful painting of our past.

You, the teachers of Bengal, are best fitted to instil reverence and love into the minds of the young for our artistic past and for a future organically connected with that past and yet responsible to newer demands. But you yourselves must first believe that from amongst our heritage, the artistic, embodying as it does in concrete and comparatively imperishable form the passionate longings and the spiritual realisations of our country, is the one that is likely to live longest in the world's memory. I would wish you to subscribe to this article of faith that our ancient art has been one of the most adequate vehicles for the expression of the inner life of man and deservedly holds the position of honour which it has found to-day amongst the arts of the other countries. If you are convinced of the utility of art in education and of their intimate connection with national culture, you yourselves, by study and observation, must be the first to be trained to appreciation and appraisement lest you become like the guardians of whom Plato speaks "who, by being educated in the midst of ill-representations, might contract imperceptibly some mighty evil in their souls".

ADDRESS DELIVERED BY PROFESSOR S. N. BOSE OF THE DACCA UNIVERSITY

MR. PRESIDENT, LADIES AND GENTLEMEN,

I confess at the outset that I had great misgivings in choosing as the subject of this evening's discourse, the place of Science in Education. My difficulty arose on the ground of my ignorance as to what this conference really stood for, what it exactly aimed at; whether it sought to change the present educational system radically or was merely an attempt to revise the arrangements in vogue.

I am aware the Hon'ble Minister of Education took pains to convince us that the present system of Education was by no means an ideal one, especially as it was indirectly responsible for the steady increase in the unemployment of our educated youths; and we are grateful to him for his vigorous attempts to devise plans to remedy some of its glaring defects. To be candid, if I had not been assured that you all desire to revise and reconsider the present system, I would not have wasted your time by pointing out to you that Science is one of the crying needs of our present educational system. For one can do very well without much Science, of any real scientific teaching, if all that is wanted is somehow to impart literacy to the masses. But if we propose to look on education as the means of effecting adjustment between man and his environment, we cannot but recognise the supreme importance of the study of science in our Schools and Universities. I need not remind you how Science has hitherto played a very insignificant part in our educational programme. It had no place in Schools when we were boys, and though during the last two decades the remodelling of the University courses has offered increased facilities for scientific studies to the college students, the Schools are still practically without it. I do not make this point with any controversial bias, and I may be mistaken in my apprehension of facts. But if any plan proposes to go to the roots of our educational needs, it must, you would admit, allot to science and scientific teaching a more important role, not only in the curricula of the universities, but also in those of the schools—I therefore take this opportunity to express my gratitude to the organisers of the week, for extending to me the privilege of

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pleading before this distinguished gathering of educationists the case for science in education. I need hardly add that I am not one of those who would dispense with either science or education in life altogether, simply because neither our universities nor our schools have so far succeeded in solving the economic, and cultural problems of our lives. As a matter of fact this failure is writ large on the face of almost every institution and organisation in the province. But the remedy for this state of things does not lie, in renunciation of all organised social efforts and a return to wilderness and ascetism. We need not put on sack cloth and ashes and adopt some simplified form of existence hardly distinguishable from primitive patterns of pastoral life. Lack of directions in our educational efforts, has to my mind, brought about this deplorable state of things ; and the amelioration lies not in the abandonment of hopes and obligation, but in the adoption of a conscious and consistent plan, and a united will to realise it.

The charge that our educated youth is an economic misfit has been often repeated. Assuming that he is so, is it fair to put the whole blame on him alone? What is really responsible for the fact that our youngmen cannot utilise their learning, in any practical way and find for themselves suitable places in the economic arrangement of the country? Is it because we have not got even a decent amount of trade and industry here, which can offer them occupation? How is it then that hundreds and thousands of strangers make their easy pile in this land? Does it not look strange that side by side with this amassing of large fortunes by others, our youngmen, who spend the best years of their lives, and a considerable portion of the slender resources of their families in acquiring academic distinctions should be practically starving for want of employment? These questions cannot be answered without going into the historical conditions under which the present educational policy was inaugurated. It is an open secret that the policy was neither scientific nor economic in its origin, its object was not to provide education of a type best suited to the social needs, and scientific considerations did not come within the purview of the educational authorities of the bye-gone days, in determining the interests of the people concerned. But this is not to deny that it sought to implant an ideal in the minds of the youngmen of these days, and to serve a useful purpose : For youths of the country were necessary to interpret a new civilization and a new

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culture, and act as cheap but efficient links in the long chain of administration flung far and wide over the land. There was in consequence, sufficient employment for them and the question of fit or misfit, never arose. The educational experiment, on the contrary, was so effective, that its range expanded by leaps and bounds, as years went by. But changes gradually came over the whole country, and were accentuated during the last two decades. Imperative social and economic needs made the parochial conception of a hyper-literary education, obsolete and useless, and the old system at best suitable for a leisured and affluent few, continued to cater for the toiling millions. What else should you expect in the circumstances except a misfit? And should you not in all fairness apportion the blame of the sad situation between the authorities and the students, instead of criticising the student alone. Should we not desist therefore from further complicating the issue by introducing the question of race, congenital inferiority and all such inane erudities? It is however futile to discuss who is or who is not to blame for this deplorable state of things. The important point is to devise such changes as will adjust the educational system to altered conditions, and to do this we must approach the question in a dispassionate and scientific manner, which alone will reveal not only the magnitude of our task but also the methods that we have to adopt to surmount our peculiar difficulties. The importance of a critical survey of the actual conditions prevalent in the country cannot in this respect be over-emphasised, and in an examination of ways and means, the essential must be separated from the inessential. It is no doubt for instance desirable for a budding teacher to know the height of the highest mountain and the length of the longest canal, as well as the intricacies of the lordly game of cricket and the hierarchy that holds together cabbages and king. But it is more than perilous to miss the interdependence of anophiles and malaria, and forget the connexion between cholera and drinking water. The life of the community depends on a detailed knowledge of its natural resources, and in an agricultural country with an increasing birth-rate the modern methods for improving the yield of the land deserve a very much greater attention than it has hitherto received. It is needless to remind you again that in this land superstition is still the prime mover, and no amount of book-learning will overcome it sooner than an intimate contact with the modern miracles of man-made machines. Thus will the supremacy of law and order even in in-

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animate nature become implanted in our minds and events will cease to be ordained by stars or determined by a malevolent fate. The distinction of science from idle speculation, and its connexion with common sense has been too often stressed for me to emphasise anew. Your philosopher is surely justified in dilating on the epistemological difficulties of accepting any recognised cosmology and may even dismiss time out of Court for want of what he considers to be logical evidence; but we men in the streets are denied such luxuries and if we fail to provide for the morrow we shall surely starve. The study of ancient history and archaeology, of literature and theology have, no doubt, their ennobling influence and make us conscious of our past heritage. But Science with its causal laws and technical mastery over nature is essential, if our aim is to harmonise life with its surroundings and to seek to harness elemental forces to our will and service. The sooner we impress upon the minds of the coming generations that individual destinies are amenable to human control, the nearer we shall be to whatever be the goal.

It is rather late in the day to extol the achievements of the Japanese; and their phenomenal rise in the political and economic sphere is a tale that has lost its point by endless repetition. It is, nevertheless, important to remember that their contact with Western Science and Culture, began not much earlier than ours. Yet Japan to-day has not only left us behind in the race of progress, but many of the pioneers of European industrialism are unable to keep pace with her. This has been brought about by careful and conscious planning and not by cultivating a fastidious accent in foreign tongues. So we may laugh as much as we like at their mistakes in English and their woeful lack of expression in languages other than their own; but their adaptation of educational methods to national needs should become an object lesson for those who are still opposed to any sort of planning, and adhere to the medieval ideal of a cloistered education. But Education and Scientific planning can no longer be dissociated with impunity in the modern world; and even in the country which, we heard, won the battle of Waterloo in the playing fields of Eton and Harrow, education tends to become more and more technical and utilitarian and less and less of an expensive luxury. If the paramount importance of planning in an efficient education is now recognised in a conservative country like England, the part it plays in progressive America or Germany

need not be stressed here when it is well-known that in these countries many a wonderful discovery in science have, in recent years, resulted from well-planned efforts to supplement national resources.

I am aware that planning in a vague sense is not quite absent in our educational system ; and many improvements have been or are about to be effected in providing technical education for grown-up college students. But in order that such plans may bear fruit, it is necessary not only to organise the final forms, but also to think out carefully all the steps leading thereto ; and unless the ground is assiduously prepared from the initial stage, such efforts are likely to remain sterile. Success in technology is a triumph of the scientific spirit, and a mind nourished on purely literary ideas is less likely to absorb it than one on which classical moulds have not left their indelible mark. Training in scientific mode of thinking should, therefore, begin as early as possible, preferably from the primary schools. This, however, must not be confused with either technical education or vocational training, but boys should be familiarised with the elements of natural sciences and the principles of hygiene and biology. I have been told that these subjects are touched upon by some of the recommended text-books and teachers speak on these topics in their classes. But that is not enough. Pictures and fairy tales about science and scientists are worse than useless ; and students, if they are to form any idea of the subject should have direct experience of the scientific method which is not, in reality, a dexterity with instruments, nor an initiation into the mysteries of mathematics, but a training of the senses in direct contact with Nature. Experiments are, of course, essential. But they do not require, in the early stages, expensive instruments. Nature herself should be the laboratory ; and an ingenious teacher can find a lot to talk about in the everyday world familiar to the student from his birth. The natural setting of the primary school is the village ; and for an agricultural country no better background for an educational system could be imagined. For all the fundamental forms of life are assembled there : agriculture and its possibilities, marketing and its various difficulties, public health and its deadly enemies, machines and means of transport in various stages of development all are there ready for objective study. If therefore the right sort of teacher is forthcoming, the elementary

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, economy of the Bengali village will be no handicap to the youthful seekers of scientific knowledge.

The teacher is all important in such a system and his example and sympathy will counter-balance the deficiencies in equipment. He must, therefore, be carefully trained, and acquire not merely book-learning in methods of teaching, but a real enthusiasm for his work. For it is useless to cite examples from foreign text-books when young children are concerned; and in order that knowledge may become vital to them more attention should be paid to local conditions and instruction should be through materials in daily use. The medium of instruction is, therefore, of foremost importance, and it is not enough that children should be taught, as they are now, in their mother tongue; but that the teachers themselves should learn to think in their own language. This, it is needless to point out, requires the adoption of Bengali as the medium of instruction throughout the whole of the educational system. At any rate, so far as the teaching of science is concerned, there is no other alternative, if in ordinary scientific education we should aim at the cultivation of the scientific attitude rather than proficiency in scientific and pseudo-scientific catch words. I am aware of the immense difficulties involved in this desirable change in the existing order of things. But remembering the solid achievements of a young university like the Osmania, I believe my suggestions are neither unworkable nor incapable of realisation in the near future. What is indispensable for success is the goodwill of the whole country, the co-operation of the universities and educational institutions, aspirations of the teachers and determination of the educational authorities of the country.

I repeat again that the soundness or otherwise of every educational system depends entirely on the teachers, especially in the primary stages, where foundations of all future activities are laid in extremely impressionable soil. They, therefore, should be carefully recruited, furnished with the necessities of life, freed from material anxieties to devote all their energy and time to the realisation of educational ideals and made alive to their great responsibility and the power for good that they might easily become. For this purpose such meetings as this conference should become a regular feature of our national life. At the same time less complicated methods to foster closer

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co-operation and promote more frequent exchange of ideas among teachers must be devised. For Bengal is a vast country with insufficient means of communication between distant parts where isolation of workers is more the rule than the exception; and personal meetings, even if not expensive, are impracticable here. An obvious way out of these natural difficulties would be the establishment of a periodical through which teachers would state their problems, receive suggestions, keep in touch with modern educational movements, gather information about current achievements in science and to some extent make up for the lack of usual library facilities. So that its appeal may be universal, the journal must perforce be in the vernacular. There should, also, be state-aided central libraries feeding different groups of schools, judiciously distributed throughout the province, and stocked with books of reference which are ordinarily beyond the means of primary and secondary schools.

But a forum for teachers and co-ordination of primary schools alone are not enough to ensure a sound scientific education. The secondary schools as well as the subsequent institutions have also to be suitably planned. Here the personality and the sense of responsibility of the teachers alone will be insufficient, if the teaching of science is to be taken out of its rudimentary state and made suitable for the complexities of modern life. Provision of properly equipped laboratories where students with aptitude, can work in natural and biological sciences becomes imperative at this stage. It would perhaps be an Utopian dream to expect such resources in every secondary school but some selected institutions must be established, one in every district at least, if science is to be of any practical utility in national life. It nevertheless is unnecessary to make teaching of science compulsory in secondary schools as it is suggested to be made for the primary stages. On the other hand in case of students who choose science as especial subject, some fairly rigorous test of fitness is desirable. For it would never do to repeat the mistake that has resulted in the over-crowding of some of the professions; and as the minimum of science indispensable for the purposes of daily life is already provided for in the early stages, the available resources should not be wasted indiscriminately, but utilised for the really deserving student. The process of selection should not therefore end in mere written examinations, but be supplemented by such practical tests as will

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- determine his talent for application. For science, divorced from pragmatic considerations is even worse than speculative philosophy.

I am confident that if these suggestions are given effect to sufficiently early, the universities and advanced technological institutions need not be handicapped for want of suitable human material. On the contrary there is bound to be a sufficient number of capable students who could both be adequately trained and trusted to carry out the programme for higher studies, and this will serve the real need of the country sufficiently if all the other institutions like the universities, have already chalked out their programme on the basis of a survey of our national need. For after all it is not a question of only producing the right sort or number of students in as economical and efficient a way as possible but also of forming a plan on the actual survey of the country's needs. It is not for me to talk about the university methods, and higher studies in this gathering. But just as it must be emphasised that we cannot be too careful in training our students it must be equally obvious that the programme of higher training must be directly and intimately in touch with the actual needs. If we really want to solve the problem of unemployment and make our educational institutions sufficiently effective and responsible we must so build up our universities and schools as if they were expanded departments of our social existence. It follows from this, that science cannot be made to face social problems adequately unless and until universities, are linked up with industrial and commercial activities of the country, and co-ordinated with such (Government) concerns as make practical use of scientific investigations. What we have to bear in mind is that the question of scientific training and that of the industrial and technical activities in the country do not fall apart ; on the contrary they are intimately bound up with one another. If, for instance, we do not utilise the myriad centres of industry and agriculture for giving our students an opportunity to work out their more or less theoretical knowledge, we would be leaving their training half finished. Our experts, at best, will be more of the academic type and therefore not sufficiently useful for practical commercial purposes. If, on the other hand, commerce and technical departments have to recruit all their specialised staff and skilled labour from abroad and not draw upon the indigenous sources, they are bound to suffer from the point of view of economy as under as the country as a whole from the point of

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view of efficiency. What is, therefore, of supreme importance is that we should provide for as direct an interchange of services as possible between our educational institutions and the technical and industrial centres with the assurance that they stand in a relation of interdependence and form between them the social order as a whole. I need hardly add that in the nature of things, there must be an unrestricted give and take between the educational institutions and non-academic undertakings. We should never really be ashamed of going down to the mines, factories and railway lines to finish our scientific training, nor should industry fight shy of our universities on the false ground that they produce only theoretical and academic men.

I have talked sufficiently long and it is time for me to wind up. I am not at all sure if I have been able to convey to you what value I attach to science as it is, or its place in education. But I do not want you to carry away the idea that I am one of those who teach science and prepare its principles on purely pragmatic grounds—and hold that science has nothing spiritual about it—that it is altogether utilitarian in its scope and serves no end that is not rooted in what may be called the mundane existence. I have insisted much too often on the place and the value of science in the economy of our social needs. As a matter of fact a good portion of my lecture has gone to explain how from the primary to the university stage science is bound up with its environment, how the village, in the case of the primary, and the town and city in the secondary and university training form the necessary background for an efficient and all round scientific education. But in all this it never was for one moment my object to draw any line of distinction between the spiritual and the material and in so far as I am convinced of the essentially liberating influence of the scientific spirit, and the profoundly humanising tone of its investigations, I believe, also in, its intimate contact with the utilitarian and the mundane. After all it is not the universe alone, but human life too, that is one whole ; we do it harm and injury by dissecting it. What we should always bear in mind is that in so far as science is ministering to the economic and social needs of the human race, it is really working out its deep spiritual purpose.

ADDRESS BY PROF. MEGHNADE SAHA, OF THE ALLAHABAD UNIVERSITY

Suggestions as to how the economic problems of Bengal could be solved with the aid of Science were made by Professor Meghnad Saha in a lecture during the Bengal Education Week.

Prof. Saha referred to economic distress in Bengal, particularly amongst the middle classes, and said that owing to circumstances which were well-known 50,000,000 men were confined within a small area of about 80,000 square miles of purely agricultural country. The problem was not only how these 50,000,000 could obtain from the soil not only the bare means of sustenance in the form of food and clothing, but also some surplus wealth which would enable them to secure some of the amenities of civilized life.

He thought that there was sufficient room for improving the existing conditions, even in a purely agricultural country like Bengal, and he illustrated it by contrasting the conditions here with those of Egypt.

The latter country also was mainly agricultural, and her cultivable land amounted to only one-fifth of Bengal. But the national income of Egypt was near about Rs. 60,00,00,000, while that of Bengal was only Rs. 1,20,00,000. If Bengal were to retain the contribution which she directly or indirectly made to the Central Government, her total income would not exceed Rs. 30,00,00,000, whereas on the scale of Egypt it ought to be Rs. 3,00,00,00,000.

This showed that the average income of the Bengal peasant, or rather his tax-paying capacity, was only 1/10th that of the Egyptian peasant. Since the soil of Bengal was as rich as that of Egypt, it must be admitted that something was radically wrong with the economic state of Bengal.

LACK OF CROP-PLANNING

Prof. Saha showed by an analysis of the existing conditions that the situation was due to a lack of crop-planning and to neglect of the river systems of Bengal. Bengal soil was not only fit for cultivation of rice and jute, which

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were now grown in large quantity, but also for the cultivation of cotton, silk, sugarcane, and oil seeds—which used formerly to flourish but had fallen into decay owing to circumstances which were well-known. Of all money crops, jute was now the most important, but this industry was also now falling into decay.

Prof. Saha suggested methods for the improvement of the present conditions. He said that the State should establish a Central Jute Research Institute, on the lines of the Central Cotton Research Institute.

Discussing other money crops which could be raised in Bengal, Prof. Saha mentioned silk for the culture of which Bengal soil was very suitable.

He stated that during Moghul times, silk worth Rs. 4,00,00,000 used to be exported by the European traders in Bengal, but while other countries had improved their position by adopting scientific methods for the culture of the cocoon and by using improved machinery for weaving, the people in Bengal had been sticking to medieval methods and the result was that the industry was almost extinct. But if the public and the Government acted according to a definite plan, this industry might be revived.

The same was the case with cotton. They knew it for certain that excellent cotton used to be produced at one time in the Dacca district. Mr. John Tayler, writing in 1800, stated that a tract of land about 40 miles long and 3 miles wide in the parganas of Bikrampur, Karticpur, Kedarpur, and Rajnagar produced some of the finest cotton then known. Cotton was also grown in the north of the district.

The disappearance of cotton cultivation from Bengal must have happened at a time when the cultivators found that, owing to the import of Lancashire cotton goods, the demand for cotton goods had disappeared. But now that there were a number of cotton mills running in Bengal, the Agricultural Department of the Government of Bengal should try to revive cotton growing in this province. It should now undertake vigorous propaganda amongst the peasants, explaining to them the modern methods of cotton cultivation and the varieties which would suit the conditions of the Bengal soil and climate, and, furthermore make it clear to them that it would be a paying crop in the near future as the number of cotton mills was gradually increasing and they would have no difficulty in finding a good market.

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SUGAR INDUSTRY

"The investigations of all these problems," said Prof. Saha, "require the establishment of a first-grade agricultural college in Bengal on the line of the Agricultural College at Coimbatore or the Pusa Research Institute.

"The main duties of this agricultural college would not be to train students for getting a degree but rather to plan researches on possibilities of raising better types of economic crops like cotton, oil seeds, silk and sugar-cane in Bengal. That researches can help materially in these directions and can resuscitate old industries, is shown in the growth of the sugar industry in recent years chiefly in Bihar and the U. P.

"Though the growth is mainly due to the protective tariff, a large measure of success is due to the culture of new varieties of cane at the Coimbatore Agricultural College which have replaced the old unprofitable varieties in 11 parts of Northern India."

*A Lecture delivered by Sir Ross Masood in the Senate House,
Calcutta, on the 7th February, 1936.*

MR. CHAIRMAN, LADIES AND GENTLEMEN,

I am grateful to your Minister of Education—the Hon'ble Khan Bahadur Azizul Haq—for the very kind and cordial invitation he sent me to participate in your Education Week, for, though I now live in a different clime, far away from you, my connection with your great province is an old and intimate one. Not only did I begin my official life in an institution connected with your university, but it was here that I also met that great man—the late Sir Ashutosh Mookerjee—who became for me my *guru* in matters educational. He is now, alas !, no more with us, but we know that in the educational annals of our land his name will for all time occupy the place of honour due to one who single-handed and under circumstances of great difficulty sought to give a national basis to education and fought to free it from the soul-destroying meshes of official exigency and red-tape. The thought that it is his able son who is to-day carrying on his work as Vice-Chancellor of your university fills my heart with joy and reconnects me emotionally with the past that I knew.

As I stand before you with old memories revived, I feel that for me for the moment this past is after all not as distant as time would have one believe. I again see around me in my mind's eye the stalwarts of days gone by—the pious and modest Guru Das Banerjee and the dynamic Surendra Nath —men from whom I learnt the great lesson that in the service of one's mother land in spite of old age the heart can always remain young. May their souls rest in peace and inspire us to complete that which they had to leave unfinished !

Of all the problems that confront the Indian educationist to-day, there is none which is more deserving of careful consideration and early solution than that of the position which the different languages spoken in our country are to occupy, when our present system of education is overhauled and re-organized to meet adequately that which will be demanded of it by the impending changes in our system of Government.

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Rightly or wrongly, for good or for evil, we in India have placed our faith in a form of government which has been discarded not only by many countries in the West but also by those in the East which the world agrees to call progressive. It seems that democracy with which the West has played to satiety is now in a mangled condition to become our plaything. It is indeed a tragedy that like children nations too refuse to accept as correct the results of the experiments which they have not themselves tried. Whether this attitude of the human mind leads to ultimate good or not is a question which I shall leave to philosophers to determine : all that I know is that it leads to a great wastage of energy, which I consider a serious matter for such a country as ours, where much that is of basic importance in the life of our people has still either to be reorganized or created afresh.

Now if the democratic form of Government, as interpreted by the West and selected by us, is to have a fair trial in our country, there are certain rules by which we must abide and certain conditions which we must bring into existence without any further delay. Of these the most important, and the one with which I shall be mainly concerned in this lecture, is the war which has to be waged incessantly against illiteracy and therefore against ignorance if real disaster is to be averted. Democracy has an unpleasant way of degenerating into anarchy if attempts are made to establish it in a country where the majority of the inhabitants happen to be illiterate ; and this seems to me to be the most immediate danger with which we in our country are to-day threatened.

In our fight against illiteracy and ignorance it is the languages spoken in our country that will prove the most potent weapons, and if we continue to neglect them in the future as we have done in the past, we shall ourselves be guilty of inviting disaster. The injury that can be inflicted on a country by an ignorant electorate can be as serious and as lasting as any that can result even from a prolonged war. Thus the problem before us is how to bring in the shortest time possible a correct knowledge of the essentials of collective life and of the requirements of modern citizenship within the reach of our countrymen of whom the vast majority are at present unfortunately illiterate ; or in other words, how to solve in the quickest manner possible the problem of mass education in our country.

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I am one of those who believe that if education is to be based on reality, it has to be organically connected with the life of the people whom it is sought to educate. This has not been the case with the system of education which we have been following since the middle of the nineteenth century. The result in the main has been disastrous. Not only has it caused a radical disruption in our social life, but it has also set an undeservedly high value on the mechanical faculty of imitation and shaken our faith in most of that which had come down to us from our ancestors as representing our old culture. It has tended to make us despise our own heritage without making us the real inheritors of any other heritage; it has disconnected us from our past traditions and failed to connect us organically with any other body of traditions; and finally, it has starved our soul and created in us that inferiority complex which not only saps the virility of a people but also makes it difficult for others to get on with them.

I maintain that most of these defects would have been avoided if we had determined to use our own languages as the media of higher education. But, alas !, this we did not do. Our faith in ourselves was so much shaken that we did not believe that anything that had originated in our own country was deserving either of preservation or improvement. With time this contempt for our own languages became so intensified that till not so very long ago there were many amongst our countrymen who actually took pride in the fact that they could not speak their own mother tongue correctly : Some went even to the extent of aping not only the Englishman's gestures but also his wrong pronunciation of Indian words ! This offers to my mind the best example of that expressive but much abused term—slave mentality—which Mahatma Gandhi has added to the already fervid vocabulary of our politicians.

To remove these defects from our present system of education, it is necessary for us to rationalize and therefore nationalize it. What constitutes national education is too complicated a topic for me to discuss to-day, but one aspect of it can be defined, and that too plagiaristically, as the education of the people of a country, by the people of that country, in the language of that country.

But before we can proceed with the reconstruction of our educational system, it is necessary for us to face certain facts however unpalatable they be

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to our politicians. The first of these is that the inhabitants of our vast country neither constitute one nation nor offer any hope of becoming one within any measurable distance of time. The second is that though the present clash of different and often contradictory cultures and religions will with time become less vocal, yet it will always remain a reality in the group life of our people. The third fact we have to face is that no attempt to superimpose either one language or one religion on our people has any chance of success.

We have thus to visualize the India of the future as a country consisting of different nations or cultural groups, each represented by a language of its own. This leads me to hazard the statement that our educational problem is national only in appearance, for it is in reality international, since it deals with the educational evolution of different cultural groups that inhabit our land.

Those that planned our present system of education seem to have been unconsciously guilty of practising in our country that which they would not have been allowed even to preach in their own. They paid no heed to the axiom that it is one's mother tongue that one understands most easily, and that consequently, if knowledge has to be conveyed rapidly to any one, it is his mother tongue that should always be employed for the purpose. It is pathetic, though nevertheless true, that ours is the only country in the world where it is still found necessary to draw the attention even of those connected with educational work to the truth of this axiom. The unreality that envelopes our educational effort and its failure to achieve results commensurate with the energy expended on it are entirely due to the unnatural attempt we have made in the past and still continue to make to use a foreign language as the sole medium of higher education.

One of the unhealthy results of this has been that it has given to our already caste-ridden country yet another caste consisting of those that find themselves unable to express their thoughts adequately in any language of their own country, and are consequently unable to pass on what they have learnt to the vast masses of their countrymen, who, in spite of coming into close contact with them, remain as ignorant as before.

In this connection I cannot help narrating to you an episode from my own life, which brought me great humiliation at the time. Many years ago, my old mother, who would be considered uneducated only in our country and

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that too only by the products of our educational system, happened to be living with me in a place where bubonic plague had broken out. At my request, as a precautionary measure, she had herself inoculated against it. When the fever and pain which sometimes follow such inoculation had left her, she asked me to explain to her the principle that underlay all inoculation. I thought over the answer for a few minutes and then had to confess to her that as she did not understand either French or English and I did not know enough of my mother tongue for the purpose, I could not explain the theory of it to her. Thereupon my mother looked me straight in the face and said : "My son, of what use will your education be to your country if it does not enable you to remove the ignorance even of her of whose very bone and flesh you are made?". I leave you all to guess what my feelings must have been at that moment.

But this is not the only harm which our neglect to develop our own languages has done to us. It has also tended to disrupt the cultural unity of our home life in many other ways. Our women, for reasons social and economic, have not been able to afford the extra time necessary for learning a foreign language before proceeding with their education proper. We have thus brought ourselves face to face with the strange paradox that however well our women may know their own mother tongue and however wide awake they may be intellectually, we in our heart of hearts are not prepared to consider them educated. The ignorance of the English language has in our mind become synonymous with the absence of education ! I do not know of any other country in the world where one would be called educated who knew a foreign language but was unable to express himself adequately in his own mother tongue. It is self-evident that a home where the cultural outlook of the wife is diametrically opposed to that of the husband can never become the abode of happiness that it should be.

Moreover I find that the absence of discipline which has been such an unpleasant characteristic of life in our country is also due to a large extent to the presence of this cultural disharmony in our homes. The young boy who goes to school and learns practically everything through the medium of the English language does not take long to come to the conclusion that simply because she does not know the English language—to his mind the sole medium

of sound education—his mother must be an ignorant woman. He begins to treat her opinions and ideas with that contempt which is the negation of all home discipline. This is not the case in other countries where the difference in the education of men and women is only one of extent and not of quality. For example a Japanese mother can not only follow the progress her son makes even in the collegiate stage of his education but is also prepared to discuss intelligently with him that which he has been taught, and, frequently, even to explain to him what he had found difficult to understand *in the class room*. Unlike the vast majority of our women she has been able to preserve her (seniority of status) even in matters educational and thereby to strengthen still further that discipline of the home which gives an added stability to nations.

This duality of culture or rather the clash of cultures that goes on sometimes silently but nevertheless constantly in our lives shows itself also in other ways. One has only to examine our homes to realize fully the confusion that exists in our inner life. Our homes to-day are neither Indian nor English in character, but generally represent an ugly mixture of the worst features of both. The desire to imitate Englishmen in everything, nurtured by the unnatural importance that we have assigned in our educational system to the ability to speak their language, manifests itself tragically in our possession of just one room in our houses which we fondly imagine we have furnished in what only we consider to be the correct English style. With the rest of the house we do not seem to have any concern, and certainly not with such portions of it as the kitchen, etc., which in a real English home would be treated as at least of equal importance. We seem to regard appearance as of higher value than reality, and to treat life as a perpetual masquerade wherein we vie with each other in trying to play feebly the part of Englishmen.

The same air of unreality surrounds the work which is carried on in our educational institutions. An outsider visiting them would find our method of instruction stupid in the extreme. He would, for instance, see the absurd sight of a group of Indian boys being taught the history of their own country in a language which happens to be neither their mother tongue nor that of their teacher. Let us for a moment put ourselves in the position of such a visitor, and then ask candidly whether absurdity can go any further. Education acquired under such artificial circumstances can never become the living force in life that it should be. I dread to think where Japan would have been

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to-day if she had been as unpatriotic and unnatural in her treatment of her language as we have been, or England if she had continued to allow Latin to be the sole medium of education.

But in spite of the pessimistic picture which I have so far drawn of our educational condition, a change in the right direction has slowly begun to make itself dimly visible. We can catch glimpses of it even in such prosaic and matter-of-fact publications as "The Quinquennial Review of the Progress of Education in India," in a recent issue of which my heart rejoiced to read the following paragraph :—

"There can be little doubt that most of the disappointing results in secondary and collegiate education can be traced to the use of a foreign "medium of instruction. It is a sad effect of the present system of education in these stages that, though a certain number of gifted students speak and write English with remarkable fluency, the majority are losing the power to think and to express themselves in any language."

The inclusion of such a paragraph in an official document seems to me to be a happy augury for the future. We can only hope that it is the harbinger of that change in the official outlook on education which has now long been overdue.

If the premise annunciated by me earlier in this lecture, namely that we Indians constitute in reality a collection of different cultural and linguistic groups, is accepted as correct, as also the statement that we can never make ours a unilingual country, then it follows that the sooner we turn our attention to the development of our indigenous languages the better will it be for the progress of our country as a whole.

It will have been noted that throughout this lecture I have been using the term languages, which term for the purpose I have in mind does not include dialects or inadequately developed patois that have no cultural basis. Briefly stated, my scheme for the educational reconstruction of India is that we should divide our country into linguistic areas and give to each such area a university wherein the language of that area should be the medium of instruction. This is the only way in which we can make our universities real sources of enlightenment for our people, and at the same time connect them organically with the life that goes on around them. Their present organization

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- has made them so remote from the actualities of life of even their surroundings, that, were they to disappear, they would not be missed by the vast majority of those people in whose midst they are situated. Politically we have accepted the principle that our country is to be a federation of States. Let us be consistent with ourselves and follow the same principle educationally.

It can be objected that the present administrative divisions of our country do not coincide with the linguistic divisions that I have proposed, and that consequently my scheme would result in a multiplication of universities. This objection I do not consider as of much importance, for I see no harm in our endowing such large areas as the Bombay and the Madras Presidencies with more universities than they possess at present. There is even to-day an administrative area—the United Provinces—where there are no less than five universities. Another objection that I have frequently heard raised is that by strengthening the different languages of India we would be giving an added force to the separatist tendencies of our country. To this my reply is that, as I have already stated, I do not visualize India as a country which can ever become nationally as homogeneous as, let us say, England. Political unity of outlook can only come into existence by correct education which alone enables a people to understand what the common good of their country demands. Moreover unity of language does not necessarily bring into existence internal unity, or, vice versa, a multiplicity of languages internal disharmony. We all know that in spite of the fact that the Negroes of America not only speak the language of the white people inhabiting that country but have also adopted their mode of life and even their religion, they continue to receive at the hands of Americans a treatment which I consider a disgrace for any country that claims to be called civilized. On the other hand, we see that in Switzerland, where in spite of its small size no less than three languages are spoken, there is more unity of national outlook than in many countries that are unilingual.

I would aim at creating unity by introducing a system of education which, though not stereotyped, would nevertheless be from the point of view of its contents more or less unified. Nor is it my intention that we should give up the study of the English language which I firmly believe has come to stay in our country for good, and which will continue to be not only our main

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channel of contact with the western world, but also one of the lingua francas of our country. I am only opposed to its use as the sole medium of instruction, for I do not believe that it can ever be made the language of the masses, and as such be of any help to us in fighting mass illiteracy.

All properly organized systems of education aim at facilitating the transmission of knowledge from the teacher to the taught. Ours has made this process unnecessarily cumbersome by using a foreign language for the purpose. This defect must be removed.

Such universities as those that I have ventured to propose will have their roots deep down in the cultural soil of our own land, and whatever emanates from them will reach even the masses unhindered since it will be transmitted to them in a language which they will understand.

I have sometimes also heard it said that Indian languages can never become correct conveyers of modern thought. Need I prove the hollowness of this objection to those that have living amongst them a Robindra Nath Tagore? Moreover this is exactly what was being said in different countries in Europe when the first feeble attempts began to be made to displace Latin from the unnatural position that had been allotted to it also in their systems of education. Remember that Europe too has passed through the same stage of educational chaos through which we are to-day passing and that there too for a long time people who desired to be called educated felt ashamed of using their mother tongue for serious purposes.

To me it is obvious that what Japan has been able to do in spite of being burdened with an ideographic language, our country can do with greater ease with languages which are both in construction and origin nearer to European languages than is the case with the Japanese language. It is true that a great deal of constructive and hard work has to be done, but then nature has ordained that nothing that is worth having in this world should be obtained without hard work. We have to pay by making an extra effort for having allowed ourselves to lag behind in the educational race, and of this we should not complain.

If India is to recapture her soul, she can only do so by developing that which is her own and not by attempting to treat as her own that which is not hers. Remember that to neglect what is one's own is frequently to court the neglect of others. Intellectually, our country to-day presents a pitiful

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sight. She is like a sick woman who refusing to use the legs which God has given her is compelled to hobble along painfully and that too only with the help of crutches manufactured in a country six thousand miles away ! So long as we allow the world to see this sight, we can regain neither that self-reliance nor that self-respect which should be ours as the inhabitants of a country which has always been regarded even by others as the home of civilization.

Diversity is and will always be the main characteristic of life in our country. We have not to evolve only one culture but in consonance with our nature a variety of cultures. Let the present be again organically connected with the past and we shall make the world all the richer by giving to her that which we feel is in us but to which we cannot at present give a visible form.

I have dealt with only one aspect of the educational reconstruction of our country—namely the place which our languages should occupy in a reconstructed system of education. With the other aspects of this question I do not propose to deal to-night. That subject is too long for one lecture and so full of technicalities that it can be of interest only to those who like me are proud to follow the humble profession of a school master.

I know that to most of those present here my views will appear heterodox, but I also have the satisfaction of knowing that it frequently happens that the heterodoxy of to-day becomes the orthodoxy of to-morrow. If what I have said to-night has given food for thought even to one amongst my audience, I shall feel that I have been amply repaid.

Gentlemen, the oriental in me is so strong and the theme of my address to-night has been such that I cannot resist the temptation of concluding it with a quatrain of which Sir Mohammad Iqbal—the greatest poet to-day of the Mussalmans—is the author :—

نلا ! ندادني پروانه تاے * نکيسي شهوة مرباںہ تاے
یے خود رانہ سوز خویشن سوز * طوف آتش بیکانہ تاے

O ! Heart mine, how long wilt thou continue to imitate the folly of the moth?

How long will it be before thou learnest to tread the path of manliness?
Learn first to burn thyself in a fire which is thy own;
Of what use is it for thee to flutter in adoration round a fire which is not thine.

ADDRESS BY DR. RABINDRANATH TAGORE.

THE IDEAL OF VISVA-BHARATI.

My friends have often puzzled themselves with the question as to what it was that led a poet like me to organize for myself a variety of responsibilities that has assumed the name of Visva-Bharati.

My answer would be, that the idea had its nebulous beginning in my subconscious mind in an atmosphere of literature in which my young spirit first became aware of the magical touch of West mostly through its poetical creations. It was at the time when in our country an age-long cultural segregation had given way to the knocking of the western humanity at our gate, and the fact that its urging had a profound truth was proved by the response it met in our own creative outburst. It spoke of a human universe which though variedly enriched by the products of different climates in its different latitudes, has an unbounded sky over it bared in all directions to the meteorological communication of mind. We became conscious for the first time of the universal Man marching across all physical boundaries and must have vaguely felt its impertive claim for a great spiritual fulfilment.

Nations are kept apart not merely by international jealousy but also by their own past, handicapped by the burden of the dead and decaying, the breeding ground of diseases that attack the spiritual man. I could not believe that generations of peoples, century after century, must have their birth chamber in a moral and intellectual coffin which has its restricted space-regulation for a body that has lost its movements. Civilization, as it becomes tired, has its inevitable tendency to accumulate dead materials and to make elaborate adjustment for their accommodation, leaving less and less room for life with its claim to grow in freedom. There are signs of that in India, and I know to-day that it is more or less true in all races, for our mind has its inclination to grow lazy as it grows old and to shirk its duty to make changes in the rhythm of the changing times. India should never passively accept her doom of obscurity which is not merely external but belonging to a mental perspective obstinately provincial. We have to know that in the modern age the problems

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of each country are parts of the world problem. We must develop a mentality that intelligently recognises truth in its universal aspects both in our dealings with the physical world, as well as, the moral world of man. I know that the practical difficulties in the way of our countrymen in actively responding to the message of world unity are very great. But what counts is not the difficulty but lack of faith in the ideal and diffidence in its expression. I do recognise that the pitiful meagreness of our education and a number of extraneous causes, have all contributed to our degeneracy contaminating our spiritual standard of life with superstitious corruption which belongs to the sub-human.

What has been the most effective means of dragging our minds down to a materialistic cult of piety is the complex social organism which came by its existence purely as a device to regulate the inter-relationship of different groups of our people at varying stages of development. Our real difficulty arises owing to the mixing up of the fact of our social barriers with the religious conception that they represent an eternal truth. I cannot think of a greater anachronism than the belief, deliberately cultivated in the name of religion, that, from the beginnings of beginings, the lord of all creations has instituted our unfortunate differences which no course of evolution can change or curses of adverse history demolish.

This handicap is peculiar to our country. But through the very tremendousness of the difficulty we must realise that this problem has been given to us by our providence on the solution of which depends our salvation. We have the incubus of caste difference, we have scriptural injunctions that aggravate its mischief, we have traditional beliefs that obstruct the freedom of social communication and being mostly irrational divide us from the rest of the world, confining us in a dim-lighted isolation of our own make and choice. These are the impediments that stand in the way of our national self-realisation and thwarts us in our self-revelation to the great universe of man. No amount of the caricature of the political pose of fortunate races can help us to avert the humiliation of a barren history whose source of futility lies deep in our own nature and mental and social habits. Let the politicians struggle in their characteristic way trying to win opportunities which are necessarily external and yet valuable within their limits. But Visva-Bharati if it ever can be fortunate in its resources, in its men and materials, hopes to exercise its influence

through education in an extensive field of life which comprehends the living springs of creative forces and the freedom of mind directing those forces to great purpose.

For all civilisations are creations. They do not merely offer us information about themselves; but give outer expression to some inner ideals which are creative. Therefore we judge each of them not by how much it has produced, but by the truth of its aspiration expressed in its activities. When, in things which are a creation the structure gets the better of the spirit, then it is condemned. When a civilisation merely gives a large stock of facts about its own productions, its mechanical parts, its outward successes, then we know that there must be anarchy in its world of idea, that some living organ is lacking, that it will be torn with conflicts and will not be able to hold together human society in the spirit of Truth.

It is the mission of man to build up his own age with his own resources of intellect and sacrifice of love, to create circumstances where he could have his perfect freedom. It is only the barbarian who passively accepts his shelter and sustenance from indulgent Nature of foreign charity or an instinct which blindly goes on weaving webs in an unchanging pattern fashioning cocoons within which darkly live imperfectly formed beings, the enclosures which have restricted room only for their solitary tenants.

In the modern days our mind in India is brought up as an indigent tenant on the basement floor of an alien culture where it can have only a meagre accommodation and not sufficient scope for hospitality. It is the sign of abject poverty when we may have barely enough for our own feeding and no surplus left for others. We have been reduced to such a scantiness of intellectual living because through long disuse we have lost the courage of faith in our power to create. What is worse there are a considerable number of deluded mortals among us who believe themselves superbly admirable only because they can imitate, ludicrously unconscious of the incongruity of the misfit. Our true claim to be proud depends upon our capacity to give and not in any display of foreign feathers however gorgeous they may be.

All that is true in humanity is ever waiting at our gate to be invited. It is not for us to question it about the country to which it belongs, but to receive it in our home and bring before it the best that we have. The truth of all

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civilisations has to be judged not by their success in pilfering or begging, but by their hospitality the offerings of which remain inexhausted even when the hosts themselves take their departure from the arena of history. That India after long ages of her spiritual and intellectual magnanimity should be allowed to carry on a penurious existence eking out her living by gleaning grains in foreign fields of harvest is an insult to our ancestors. It comes from utter forgetfulness whose origin is in our persistently turning our face away from our own inheritance.

I have felt the meeting of the East and the West in my own individual life. I belong to the latter end of the Nineteenth Century. And to our remote country in Bengal, when I was a boy, there came a voice from across the sea. I listened to it. It would be difficult to imagine what it meant for me in those days. I was deeply stirred, and felt as if I had discovered a new planet on the horizon where a paradise waits for our exploration.

It was the last vanishing twilight of the Romantic West. We had been living in the atmosphere of the lyrical literature of poets like Shelley, Keats, Wordsworth, and in a boundless perspective of idealism. In Europe, the afterglow of the French Revolution had not died out, and people were dreaming of freedom, of the brotherhood of man. They still believed in the human ideals that have their permanent and ultimate value in themselves. I cannot express how it did move my soul. It was that atmosphere, that great human appeal of the Western civilization which won our hearts and made us glad and proud of the fact that we had the opportunity and power to receive it.

The West at that time believed in the freedom of personality. We heard about Garibaldi, about Mazzini, and their history revealed to us an aspect of humanity with which we were imperfectly familiar—the great ideal of the freedom of self-expression for all races and for all countries. We felt great admiration for the people who were dedicated to that dream, through their literature, and also through their practical endeavours.

There are times when some particular people play the part of messengers of humanity. They come to rescue human relations from all kinds of fetters of ignorance or moral degeneracy, despair and weakness of will. We thought the present age belonged to the West, that they had come to save the world from all forms of feebleness and ineptitude. We knew what India herself had

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done in olden times. We knew what Greece had offered to humanity and which still remains inexhaustible. All these great civilizations had the effect of redeeming the minds of men from fetters of insult, from sluggishness and stupidity. And we imagined that the West had come to us with a message of life which was universal, which had nothing provincial or exclusively national in it.

And I say as an individual that the West and the East did meet in India in my younger days. But how short-lived was that white flame of promise that was brought to us, which lost its radiance growing redder and redder through a few centuries of an indecent success in a material bloatedness, the success which seems like a greedy balloon exultantly loading itself to a bursting point with an inflammatory gas. All the great countries of the West and their infatuated disciples in the East are busily carrying on some diabolical conspiracy of desolation. The poison is deep within their own selves. They try, and try to find some solution, but they do not succeed, because they have lost their faith in the universal personality of man.

While the dark crater of their inner being is vomiting forth mutual suspicion, hatred and anger, they furiously try to invent some outer machinery which they think will solve their difficulties. It does not work, it fails at critical times, because man is human, while machinery is impersonal. Men of power have efficiency in outward things ; but their humanity is dishonoured. They do not trust the divine in man, the harvester, the music-maker, the dreamer of the dream of creation.

West fights against physical evil, and that is a great thing. I often think she should come to help us, fight our material adversity, which has its source in our ignorance. We are unfortunate. We had formerly our own system of education,—that has vanished. We had our industries to help us to fill up the deficiencies of an unreliable agriculture, but all those industries have perished. And we pray that the West would come to us as a member of a common humanity. We claim it from them who have wealth which is overflowing, and we are in the direst and deepest shadow of poverty and distress on our side of the world.

We have been waiting for the Person. Such a personality as we see in Mahatma Gandhi. It is only possible in the East for such a man to find recog-

nition. This man has neither physical nor material power, but his humanity reveals itself in its simple majesty and invokes within us a strong assurance of Man the indomitable; and the people downtrodden for centuries, their backs bent down under loads of indignity suddenly stand up ready to suffer, and through suffering, conquer.

And our women,—who only the other day were secluded behind walls and enveloped in a dusk of helplessness, have come out to follow this man. Not an association, not an organization, not a politician, but a Man! And his message goes deep into our veins. He attacks the enemies that are within us. Not like the political machinery of the West that tries to work through the external. But he touches the inner spirit. The people believe in him, in this man who is not a Brahmin, but belonging to a class of money-makers who have been despised for centuries.

When times were dark, there came a Man in other days to people who needed salvation, emancipation from the fetters of materialism. He came to their door. The babe born in obscurity, brought exaltation to man. Not machinery, not association, not organizations, but an immense future taken birth in a child. And when all the machinery will be rusted, he will live.

I have felt that the civilization of the West to-day has its law and order, but no personality. It has come to the perfection of a mechanical order but what is there to humanize it? It is the Person who is in the heart of all beings. We have seen, we have known him within us, in the depth of our consciousness. Only when West comes to Him will there be peace. And I who belong to an unrecognised corner of the world have been cherishing the hope for long years that Visva-Bharati will find voice to proclaim that peace is not waiting to be concocted out of their cleverness by men who do not believe in it, to be constructed through political manoeuvring performed by nations boasting of their power, but peace can only be realised in the spiritual revelation of Man whose inexhaustible wealth is in his own fulfilment.

শিক্ষার স্বাক্ষীকরণ

শ্রীরবীজ্ঞান ঠাকুর

আমাদের দেশের আর্থিক দারিদ্র্য হংখের বিষয়, লজ্জার বিষয় আমাদের দেশের শিক্ষার অকিঞ্চিত্করণ। এই অকিঞ্চিত্করণের মূলে আছে আমাদের শিক্ষা-ব্যবস্থার অস্বাভাবিকতা, দেশের মাটির সঙ্গে এই ব্যবস্থার বিচ্ছেদ। চিন্তিবিকাশের যে আয়োজনটা স্বভাবতঃই সকলের চেয়ে আপন হওয়া উচিত ছিল সেইটেই রয়েছে সব চেয়ে পর হয়ে, তার সঙ্গে আমাদের দড়ির যোগ হয়েছে নাড়ীর যোগ হয় নি ; এর ব্যর্থতা আমাদের স্বাজ্ঞাতিক ইতিহাসের শিকড়কে জীৱ করছে, ধৰ্ম করে দিচ্ছে সমস্ত জাতির মানসিক পরিবৃক্ষিকে। দেশের বহুবিধ অতি-প্রয়োজনীয় বিধিব্যবস্থায় অনাস্থীয়তার হংসহ ভার অগত্যাই চেপে রয়েছে ; আইন, আদালত, সকল প্রকার সরকারী কার্যবিধি, যা বহু কোটি ভারতবাসীর ভাগ্য চালনা করে তা সেই বহু কোটি ভারতবাসীর পক্ষে সম্পূর্ণ হৰ্বেৰোধ হৰ্গম। আমাদের ভাষা, আমাদের আর্থিক অবস্থা, আমাদের অনিবার্য অশিক্ষার সঙ্গে রাষ্ট্রশাসনবিধির বিপুল ব্যবধানবশতঃ পদে পদে যে হংখ ও অপব্যয় ঘটে তার পরিমাণ প্রত্যুত্ত। তবু বলতে পারি এহ বাহ। কিন্তু শিক্ষাব্যাপার দেশের প্রাণগত আপন জিনিষ না হওয়া তার চেয়ে মৰ্মাণ্ডিক। ল্যাবরেটরিতে রাসায়নিক প্রক্রিয়ায় উল্লেখিত কৃতিম অস্ত্রে দেশের পেট ভৱাবার মতো সেই চেষ্টা ; অতি অলসংখ্যক পেটেই সেটা পৌছয়, এবং সেটাকে সম্পূর্ণ রক্তে পরিণত করবার শক্তি অতি অল্প পাকবন্দেরই ধাকে। দেশের চিন্তের সঙ্গে দেশের শিক্ষার এই দূরত্ব এবং সেই শিক্ষার অপমানজনক অস্ত্রণা দীর্ঘকাল আমাকে বেদনা দিয়েছে ; কেননা নিশ্চিত জানি সকল প্রাঞ্চিয়তার চেয়ে ভয়াবহ শিক্ষায় পরাধৰ্ম। এ সম্বন্ধে বরাবর আমি আলোচনা করেছি,—আবার তাৰ পুনৰুক্তি কৱতে প্ৰযুক্ত হলেম, যেখানে ব্যথা সেখানে বারবার হাত পড়ে। আমাৰ এই অসংজ্ঞে পুনৰুক্তি অনেকেই হয়তো ধৰতে পাৱেন না, কেননা অনেকেৰই কানে আমাৰ সেই পুৱোনো-কথা পৌছয় নি। ধাঁদেৰ কাছে পুনৰুক্তি ধৰা পড়বে তারা যেন ক্ষমা কৱেন। কেননা আজ

আমি হংখের কথা বলতে এসেছি, ন্তুন কথা বলতে আসি নি। আমাদের দেশে ম্যালেরিয়া যেমন নিত্যই আপনার পুনরাবৃত্তি করতে থাকে আমাদের দেশের সকল সাংবাদিক হংখগুলির সেই দশা। ম্যালেরিয়া অপ্রতিহার্য নয় এ কথায় যাদের নিশ্চিত বিশ্বাস, তাদেরই অজ্ঞয় ইচ্ছা ও প্রবল অধ্যবসায়ের কাছে ম্যালেরিয়া দৈববিহিত হৃদ্যোগের হস্তবেশ ঘুঁটিয়ে দিয়ে বিদায় গ্রহণ করে। অগ্নিশ্রেণীর হংখও নিজের পৌরুষের দ্বারা প্রতিহত হোতে পারে এই বিশ্বাসের দোহাই পাড়ার কর্তব্যতা স্মরণ ক'রে অপটু দেহ নিয়ে আজ এসেছি।

একদা একজন অব্যবসায়ী ভজসন্তান তাঁর চেয়ে আনাড়ি এক ব্যক্তির বাড়ি তৈরি করবার ভার নিয়েছিলেন। মালমসলার যোগাড় হয়েছিল সেরা-দরের, ইমারতের গাঁথুনি হয়েছিল মজবুৎ, কিন্তু কাজ হয়ে গেলে প্রকাশ পেল সিঁড়ির কথাটা কেউ ভাবেই নি। শনির চক্রান্তে এমনভরো পৌরব্যবস্থা যদি কোনো রাজ্যে থাকে যেখানে একতলার লোকের নিত্যবাস একতলাতেই, আর দোতলার লোকের দোতলায়, তবে সেখানে সিঁড়ির কথাটা ভাবা নিতান্তই বাহল্য। কিন্তু আলোচিত পূর্বোক্ত বাড়িটাতে সিঁড়িয়েগে উর্কপথযাত্রায় একতলার প্রয়োজন ছিল। এই ছিল তাঁর উন্নতি লাভের একমাত্র উপায়।

এদেশে শিক্ষা-ইমারতে সিঁড়ির সংকল্প গোড়া থেকেই আমাদের রাজমিস্ত্রীর প্ল্যানে ওঠেনি। নিচের তলাটা উপরের তলাকে নিঃস্বার্থ ধৈর্যে শিরোধার্য করে নিয়েছে, তাঁর ভার বহন করেছে কিন্তু স্থূলোগ গ্রহণ করেনি, দাম জুগিয়েছে, মাল আদায় করেনি।

আমার পূর্বকার লেখায় এদেশের সিঁড়ি-হারা। শিক্ষাবিধানে এই মস্ত কাঁকটার উল্লেখ করেছিলুম। তা নিয়ে কোনো পাঠকের মনে কোনো-ব্যে উহেগ ঘটেছে তাঁর প্রমাণ পাওয়া যায় না। তাঁর কারণ অভিন্নেই বাড়িটাই আমাদের অভ্যন্ত, তাঁর গোরবে আমরা অভিভূত, তাঁর বুকের কাছটাতে উপর নিচে সহক স্থাপনের যে সিঁড়ির নিয়মটা তত নিয়ম সোঠাতে আমাদের অভ্যাস হয়নি। সেইজন্তেই ইতিপূর্বে আমার আলোচ্য বিষয়টা হয়তো সেলাম পেয়ে থাকবে কিন্তু আসন পায় নি। তবু আর একবার চেষ্টা দেখতে দোষ নেই, কেননা, ভিতরে ভিতরে কখন যে দেশের মনে হাওয়া বদল হয় পরীক্ষা না ক'রে তা বলা যাব না।

শিক্ষা সমক্ষে সব চেয়ে স্বীকৃত এবং সব চেয়ে উপেক্ষিত কথাটা এই যে, শিক্ষা জিনিষটি জৈব, ওটা যান্ত্রিক নয়। এর সমক্ষে কার্য-প্রণালীর প্রসঙ্গ পরে আসতে পারে কিন্তু প্রাণক্রিয়ার প্রসঙ্গ সর্বাগ্রে। ইন্ড্যুবেটের যন্ত্রটা সহজ নয় বলেই কোশল এবং অর্থব্যয়ের দিক থেকে তার বিবরণ শুন্তে খুব মন্ত, কিন্তু মুরগীর জীবধর্মালুগত ডিম পাড়াটা সহজ বলেই বেশি কথা জোড়ে না, তবু সেটাই অগ্রগণ্য।

বেঁচে থাকার নিয়ত ইচ্ছা ও সাধনাই হচ্ছে বেঁচে থাকার প্রকৃতিগত লক্ষণ। যে-সমাজে প্রাণের জোর আছে সে-সমাজ টিকে থাকবার স্বাভাবিক গরজেই আঘাতেরক্ষায়টি ছুটি সর্বপ্রধান প্রয়োজনের দিকে অক্লান্তভাবে সজাগ থাকে। অন্য আর শিক্ষা, জীবিকা আর বিষ্ণা। সমাজের উপরের থাকের লোক খেয়ে-প'রে পরিপুষ্ট থাকবে আর নিচের থাকের লোক অর্কাশনে বা অনশনে বাঁচে কি মরে সে সম্বন্ধে সমাজ থাকবে অচেতন এটাকে বলা যায় অর্ধাঙ্গের পক্ষাঘাত। এই অসাড়তার ব্যামোটা বর্বরতার ব্যামো।

পশ্চিম মহাদেশে আজ সর্বব্যাপী অর্থসঞ্চাটের সঙ্গে সঙ্গে অন্যসঙ্চাট প্রবল হয়েছে। এই অভাব নিবারণের জন্যে সেখানকার বিদ্যানের দল এবং গবর্নেণ্ট যে রকম অসামান্য দাক্ষিণ্য প্রকাশ করছেন, সে রকম উদ্বেগ এবং চেষ্টা আমাদের বহুসহিষ্ণু বৃত্তকার অভিজ্ঞতায় সম্পূর্ণ অপরিচিত। এ নিয়ে বড়ো বড়ো অঙ্কের খণ্ড স্বীকার করতেও ঠাঁদের সঙ্কেত দেখিনে। আমাদের দেশে ছবেলা ছমুঠো খেতে পায় অতি অল্প লোক, বাকি বারো আনা লোক আধপেটা খেয়ে ভাগ্যকে দায়ী করে এবং জীবিকার কৃপণ পথ থেকে ঘৃত্যর উদার পথে সরে পড়তে বেশি দেরি করে না। এর থেকে যে নির্জীবতার স্ফুট হয়েছে তার পরিমাণ কেবল ঘৃত্যসংখ্যার তালিকা দিয়ে নিরূপিত হোতে পারে না। নিরংসাহ, অবসাদ, অকর্মণ্যতা রোগপ্রবণতা মেপে দেখবার প্রত্যক্ষ মানদণ্ড যদি থাকত, তাহলে দেখতে পেতুম এদেশের একপ্রাপ্ত থেকে আর একপ্রাপ্ত 'জুড়ে' প্রাণকে ব্যঙ্গ করেছে ঘৃত্য, সে অতি কুৎসিত দৃশ্য, অত্যন্ত শোচনীয়। কোনো স্থানীন সভ্য দেশ ঘৃত্যর এরকম সর্বনেশে নাট্যলীলা নিশ্চেষ্টভাবে স্বীকার করতেই পারে না, আজ তার প্রমাণ ভারতের বাইরে নানাদিক থেকেই পাচ্ছি।

শিক্ষাসম্বন্ধেও সেই একই কথা। শিক্ষার অভিষেচন ক্রিয়া সমাজের

উপরের স্তরকেই ছই এক ইঞ্জিনোর ভিজয়ে দেবে আর নিচের স্তরপরম্পরা নিয়ন্ত্রণ কাঠিন্যে সুদূরপ্রসারিত মন্তব্যতাকে ক্ষীণ আবরণে ঢাকা দিয়ে রাখবে এমন চিন্তাতী সুগভৌর মূর্খতাকে কোনো সভ্য-সমাজ অলসভাবে মেনে নেয়নি। ভারতবর্ষকে মানতে বাধ্য করেছে আমাদের যে নির্মম ভাগ্য তাকে শতবার ধিক্কার দিই।

এমন কোনো কোনো এহ উপগ্রহ আছে যার এক অর্কেকের সঙ্গে অন্য অর্কেকের চিরস্থায়ী বিচ্ছেদ, সেই বিচ্ছেদ আলোক অঙ্ককারের বিচ্ছেদ; তাদের একটা পিঠ সূর্যের অভিমুখে অন্য পিঠ সূর্য-বিমুখ। তেমনি ক'রে যে-সমাজের এক অংশে শিক্ষার আলোক পড়ে অন্য বৃহত্তর অংশ শিক্ষাবিহীন সে-সমাজ আজ্ঞাবিচ্ছেদের অভিশাপে অভিশপ্ত। সেখানে শিক্ষিত অশিক্ষিতের মাঝখানে অসুর্যম্পন্থ অঙ্ককারের ব্যবধান। ছই ভিন্ন জাতীয় মাঝুরের চেয়েও এদের চিন্তার ভিন্নতা আরো বেশি প্রবল। একই নদীর এক পারের স্রোত ভিতরে অন্য পারের স্রোতের বিরুদ্ধ দিকে চলছে; সেই উভয় বিরুদ্ধের পার্শ্ববর্তিতাই এদের দূরস্থকে আরো প্রবলভাবে প্রমাণিত করে।

শিক্ষার ঐক্যযোগে চিন্তার ঐক্যরক্ষাকে সভ্য-সমাজমাত্রই একান্ত অপরিহার্য ব'লে জানে। ভারতের বাইরে নানাচানে অমণ করেছি প্রাচ্য ও পাশ্চাত্য মহাদেশে। দেখে এসেছি এশিয়ার নবজাগরণের যুগে সর্বত্রই জনসাধারণের মধ্যে শিক্ষাপ্রচারের দায়িত্ব একান্ত আগ্রহের সঙ্গে স্বীকৃত। বর্তমান যুগের সঙ্গে যে সব দেশ চিন্তার ও বিচ্ছেদের আদানপ্রদান বৃদ্ধিবিচারের সঙ্গে চালনা করতে না পারবে তারা কেবলি হঠে থাবে, কোণ-ঠেসা হয়ে থাকবে—এই শক্তার কারণ দূর করতে কোনো ভজ্জদেশ অর্থভাবের কৈফিয়ৎ মানেনি। আমি যখন রাশিয়ায় গিয়েছিলুম তখন সেখানে আট বছর মাত্র নৃতন স্বরাজতন্ত্রের প্রবর্তন হয়েছে, তার প্রথমভাগে অনেককাল বিজ্ঞাহে বিপ্লবে দেশ ছিল শাস্তিহীন, অর্থসচ্ছলতা ছিলই না। তবু এই স্বল্পকালেই রাশিয়ার বিরাট রাজ্যে প্রজাসাধারণের মধ্যে যে অদ্ভুত ক্রতগতিতে শিক্ষাবিস্তার হয়েছে সেটা ভাগ্যবন্ধিত ভারতবাসীর কাছে অসাধ্য ইন্দ্রজাল ব'লেই মনে হোলো।

শিক্ষার ঐক্যসাধন জ্ঞানল ঐক্যসাধনের মূলে, এই সহজ কথা সুল্পষ্ট ক'রে বুঝতে আমাদের দেরি হয়েছে তারও কারণ আমাদের অভ্যাসের বিকার।

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

একদা মহাস্থা গোখলে যখন সার্বজনিক অবশ্যিক্ষা প্রবর্তনে উঠেগী হয়েছিলেন তখন সব চেয়ে বাধা পেয়েছিলেন বাংলা প্রদেশের কোনো কোনো গণ্যমান্য স্নেকের কাছ থেকেই। অথচ রাজ্যীয় ঐক্যের আকাঙ্ক্ষা এই বাংলা দেশেই সব চেয়ে মুখর ছিল। শিক্ষার অনৈক্যে বিজড়িত থেকেও রাজ্যিক উন্নতির পথে এগিয়ে চলা সম্ভবপর এই কলনা এ প্রদেশের মনে বাধা পায়নি, এই অনৈক্যের অভ্যাস এমনি ছিল মজাগত। অভ্যাসে চিন্তার যে জড়ত্ব আনে আমাদের দেশে তার আর একটা দৃষ্টান্ত ঘরে ঘরেই আছে। আহারে কুপথ্য বাঙালীর প্রাত্যহিক, বাঙালির মুখ-রোচক; সেটা আমাদের কাছে এতই সহজ হয়ে গেছে যে, যখন দেহটার আধমরা দশা বিচার করি তখন ডাঙ্কারের কথা ভাবি, ওয়ুধের কথা ভাবি, হাওয়াবদলের কথা ভাবি, তুক্তাকৃ মন্ত্রতন্ত্রের কথা ভাবি, এমন কি, বিদেশী শাসনকেও সন্দেহ করি কিন্তু পথ্যসংস্কারের কথা মনেও আসে না। নৌকাটার নোঙর থাকে মাটি আঁকড়িয়ে, সেটা চোখে পড়ে না, মনে করি পালটা ছেঁড়া ব'লেই পারঘাটে পৌছনো হচ্ছে না।

আমার কথার জবাবে এমন তর্ক হয়তো উঠবে, আমাদের দেশে সমাজ পুর্বেও তো সঙ্গীব ছিল, আজও একেবারে মরেনি—তখনো কি আমাদের দেশ শিক্ষায় অশিক্ষায় যেন জলে জলে বিভক্ত ছিল না? তখনকার টোলে চতুর্পাঠীতে তর্কশাস্ত্র ব্যাকরণশাস্ত্রের যে পঁয়াচ-কষাকষি চল্লত সে তো ছিল পশ্চিত পালোয়ানদের ওস্তাদি আবড়াতেই বদ্ধ, তার বাইরে যে বৃহৎ দেশটা ছিল সেও কি সর্বত্র ঐ রুকম পালোয়ানি কায়দায় তাল ঝুকে' পারতাড়া ক'রে বেড়াত? যা ছিল বিভানামধারী পরিষত গঞ্জের বগুঢ়ীড়া, সেই দিগ্গংজ পশ্চিমী তো তার শুঁড় আক্ষালন করেনি দেশের ঘরে ঘরে।—কথাটা মেনে নিলুম। বিভার যে আড়তর নিরবচ্ছিন্ন পাশ্চিয়, সকল দেশেই সেটা প্রাণের ক্ষেত্র থেকে দূরবর্তী, পাশ্চাত্য দেশেও কুল পদবিক্ষেপে তার চলন আছে, তাকে বলে পেড়ন্তি। আমার বক্তুন্য এই যে, এদেশে একদা বিভার যে-ধারা সাধনার হুর্গম তুঙ্গ শৃঙ্গ থেকে নির্বাসিত হোত সেই একই ধারা সংস্কৃতিজগতে দেশকে সকল স্তরেই অভিষিক্ত করেছে। এজন্তে বাজ্রিক নিয়মে এড়ুকেশন ডিপার্টমেন্টের কারখানা-ঘর বানাতে হয়নি, দেহে যেমন প্রাণশক্তির প্রেরণার

মোটা ধরনীর রক্তধারা নানা আয়তনের বহুসংখ্যক শিরা উপশিরা থেগে সমস্ত দেহে অঙ্গপ্রত্যঙ্গে প্রবাহিত হোতে থাকে, তেমনি ক'রেই আমাদের দেশের সমস্ত সমাজ-দেহে একই শিক্ষা স্বাভাবিক প্রাণপ্রক্রিয়ায় নিরন্তর সঞ্চারিত হয়েছে—নাড়ীর বাহনগুলি কোনোটা বা স্থুল কোনোটা বা অতি স্থূল, কিন্তু তবু তারা এক-কলেবর তুঙ্গ নাড়ী, এবং রক্তও একই প্রাণভরা রক্ত।

অরণ্য যে-মাটি থেকে প্রাণরস শোষণ ক'রে বেঁচে আছে, সেই মাটিকে আপনিই প্রতিনিয়ত প্রাণের উপাদান অঙ্গস্ত ছুঁগিয়ে থাকে। তাকে কেবলি প্রাণময় ক'রে তোলে। উপরের ডালে যে-ফল সে ফলায় নিচের মাটিতে তার আয়োজন তার নিজস্বত। অরণ্যের মাটি তাই হয়ে ওঠে আরণ্ঘিক, নইলে সে হোত বিজ্ঞাতীয় মরু। যেখানে মাটিতে সেই উদ্বিদ-সার পরিব্যাপ্ত নয় সেখানে গাছপালা বিরল হয়ে জমায়, উপবাসে বেঁকে চুরে শীর্গ হয়ে থাকে। আমাদের সমাজের বনভূমিতে একদিন উচ্চশীর্ষ বনস্পতির দান নিচের ভূমিতে নিয়াই বর্ষিত হোত। আজ দেশে যে পাশ্চাত্য শিক্ষা প্রবর্তিত হয়েছে মাটিকে সে দান করেছে অতি সামান্য, ভূমিকে সে আপন উপাদানে উর্বররা করে তুল্ছে না। জাপান প্রভৃতি দেশের সঙ্গে আমাদের এই প্রভেদটাই লজ্জাজনক এবং শোকাবহ। আমাদের দেশ আপন শিক্ষার ভূমিকাস্থিতি সম্বন্ধে উদাসীন। এখানে দেশের শিক্ষা এবং দেশের বৃহৎ মন পরস্পর বিচ্ছিন্ন। সেকালে আমাদের দেশের মস্ত মস্ত শাস্ত্রজ্ঞ পণ্ডিতের সঙ্গে নিরক্ষর গ্রামবাসীর মনঃপ্রকৃতির বৈপরীত্য ছিল না। সেই শাস্ত্রজ্ঞানের প্রতি তাদের মনের অভিমুখিতা তৈরী হয়ে গিয়েছিল,—সেই ভোজে অঙ্গভোজন তাদের ছিল নয়, উদ্ভৃত উপভোগে।

কিন্তু সায়ালে-গড়া পাশ্চাত্যবিষ্টার সঙ্গে আমাদের দেশের মনের যোগ হয়নি—জাপানে সেটা হয়েছে পঞ্চাশ বছরের মধ্যে,—তাই পাশ্চাত্য শিক্ষার ক্ষেত্রে জাপান স্বরাজ্যের অধিকারী। এটা তার পাশ-করা বিষ্টা নয়, আপন-করা বিষ্টা। সাধারণের কথা ছেড়ে দেওয়া যাক, সায়ালে ডিগ্রিধারী পণ্ডিত এদেশে বিস্তর আছে যাদের মনের মধ্যে সায়ালের জমিনটা তল্লতে; তাড়াতাড়ি যা' তা' বিশ্বাস করতে তাদের অসাধারণ আগ্রহ; মেঁকি সায়ালের মন্ত্র পড়িয়ে অঙ্গ সংস্কারকে তারা সায়ালের জাতে তুল্তে কুঠিত হয় না। অর্থাৎ শিক্ষার নৌকোতে বিলিতি দাঢ় বসিয়েছি, হাল লাগিয়েছি, দেখতে

হয়েছে ভালো, কিন্তু সমস্ত নদীটার স্বোত্ত উপর্যোগ দিকে—নৌকা পিছিয়ে পড়ে আপনিই। আধুনিক কালে বর্বর দেশের সৌমানার বাইরে ভারতবর্ষই একমাত্র দেশ যেখানে শতকরা আটদশজনের মাত্র অঙ্গর পরিচয় আছে। এমন দেশে ঘটা ক'রে বিদ্যাশিক্ষার আলোচনা করতে লজ্জা বোধ করি। দশজন মাত্র যার প্রজা তার রাজ্যের কথাটা চাপা দেওয়াই ভালো। বিশ্ববিদ্যালয় অঙ্গফোর্ডে আছে, কেন্দ্রিজে আছে, লণ্ণনে আছে। আমাদের দেশেও স্থানে স্থানে আছে, পূর্বোক্তের সঙ্গে এদের ভাবভঙ্গী ও বিশেষণের মিল দেখে আমরা মনে ক'রে বসি এরা পরম্পরারের সর্ব,—যেন ওটিন-ক্রীম ও পাউডের মাখলৈই মেমসাহেবের সঙ্গে সত্য সত্যই বর্ণভেদ ঘুচে যায়। বিশ্ববিদ্যালয় যেন তার ইমারতের দেওয়াল এবং নিয়মাবলীর পাকা প্রাচীরের মধ্যেই পর্যাপ্ত। অঙ্গফোর্ড কেন্দ্রিজ বলতে শুধু গ্রটুকুই বোঝায় না, তার সঙ্গে সঙ্গে সমস্ত শিক্ষিত ইংলণ্ডকেই বোঝায়। সেইখানেই তারা সত্য, তারা মরীচিকা নয়। আর আমাদের বিশ্ববিদ্যালয় হঠাত খেমে গেছে তার আপন পাকা প্রাচীরের তলাটাতেই। খেমে যে গেছে সে কেবল বর্তমানের অসমাপ্তি বশতঃ নয় ; এখনো বয়স হয়নি ব'লে যে মাঝুষটি মাথায় খাটো তার জগতে আক্ষেপ করবার দরকার নেই, কিন্তু যার ধাতের মধ্যেই সম্পূর্ণ বাড়বার জৈবধর্ম নেই তাকে যেন গ্রেনেডিয়ারের স্বজ্ঞাতীয় ব'লে কল্পনা না করি।

গোড়ায় থারা এদেশে তাঁদের রাজ্যত্বের সঙ্গে সঙ্গে শিক্ষাব্যবস্থার পতন করেছিলেন, দেখতে পাই তাঁদেরও উত্তরাধিকারীরা বাইরের আসবাব এবং ইট কাঠ চুন সুরক্ষির প্যাটান্ দেখিয়ে আমাদের এবং নিজেদেরকে তোলাতে আনন্দ বোধ করেন। কিছুকাল পূর্বে একদিন কাগজে পড়েছিলুম, অন্য এক প্রদেশের রাজ্যসচিব বিশ্ববিদ্যালয়ের ভিত্তি পতনের সময় বলেছিলেন যে, যারা বলে ইমারতের বাহ্যে আমরা শিক্ষার সম্মত খর্ব করি তারা অবুঝ, কেননা শিক্ষা তো কেবল জ্ঞান লাভ নয়, ভালো দালানে ব'সে পড়াশুনো করা সেও একটা শিক্ষা। অর্ধাং ক্লাসে বড়ো অধ্যাপকের চেয়ে বড়ো দেওয়ালটা বেশি বই কম নয়। আমাদের নালিশ এই যে, তলোয়ারটা যেখানে তালপাতার চেয়ে বেশি দামী করা অর্ধাংশাবশত অসম্ভব ব'লে সংবাদ পাই সেখানে তার খাপটাকে ইস্পাত দিয়ে বাঁধিয়ে দিলে আসল কাজ এগোয় না। তার চেয়ে ঐ ইস্পাতটাকে

গলিয়ে একটা চলনসই গোছের ছুরি বানিয়ে দিলেও কতকটা সাজ্জনার আশা থাকে।

আসল কথা, প্রাচ্য দেশে মূল্য বিচারের যে আদর্শ তাতে আমরা উপকরণকে অমৃতের সঙ্গে পাণ্ডা দেওয়ার দরকার বোধ করিনে। বিষ্ণু জিনিষটি অমৃত, ইটকাঠের দ্বারা তার পরিমাপের কথা আমাদের মনেই হয় না। আস্তরিক সত্ত্বের দিকে যা বড়ো বাহুরূপের দিকে তার আয়োজন আমাদের বিচারে না হোলেও চলে। অস্তুত এতকাল সেই রকমই আমাদের মনের ভাব ছিল। বস্তুত: আমাদের দেশের প্রাচীন বিশ্ববিদ্যালয় আজও আছে বারাগসীতে। অত্যন্ত সত্য, নিভাস্ত স্বাভাবিক, অথচ মন্ত ক'রে চোখে পড়ে না। এদেশের সন্মান সংস্কৃতির মূল উৎস সেইখানেই, কিন্তু তার সঙ্গে না আছে ইমারৎ, না আছে অতি জটিল ব্যয়সাধ্য ব্যবস্থা-প্রণালী। সেখানে বিচাদানের চিরস্মন অত দেশের অস্তরের মধ্যে অলিখিত অমুশাসনে সেখা। বিচাদানের পদ্ধতি, তার নিষ্পার্থ নির্ষা, তার সৌজন্য, তার সরলতা, গুরুশিষ্যের মধ্যে অকৃত্রিম হৃষ্টতার সম্বন্ধ সর্বপ্রকার আড়স্বরকে উপেক্ষা করে এসেছে, কেননা সত্যই তার পরিচয়। প্রাচ্যদেশের কারিগররা যে রকম অতি সামাজিক হাতিয়ার দিয়ে অতি অসামাজিক শিল্পজ্যব্য তৈরি ক'রে থাকে পাশ্চাত্য বুদ্ধি তা কল্পনা করতে পারে না। যে নৈপুণ্যটি ভিতরের জিনিষ তার বাহন প্রাণে এবং মনে। বাইরের স্থূল উপাদানটি অত্যন্ত হয়ে উঠলে আসল জিনিষটি চাপা পড়ে।

হৃষ্টাগ্যক্রমে এই সহজ কথাটা আমরাই আজকাল পাশ্চাত্যের চেয়েও কম বুঝি। গরীব যখন ধনীকে মনে মনে ঈর্ষা করে তখন এই রকমই বুদ্ধি-বিকার ঘটে। কোনো অমুষ্টানে যখন আমরা পাশ্চাত্যের অঙ্গুকরণ করি তখন ইট কাঠের বাহলেয় এবং যন্ত্রের চক্রে উপচক্রে নিজেকে ও অন্যকে তুলিয়ে গৌরব করা সহজ। আসল জিনিষের কার্গণ্যে এইটেরই দরকার হয় বেশি। আসলের চেয়ে নকলের সাজসজ্জা স্বভাবতই যায় বাহলেয়ের দিকে। প্রত্যহই দেখতে পাই পূর্বদেশে জীবনসমস্যার আমরা যে সহজ সমাধান করেছিলুম তার থেকে কেবলি আমরা স্বলিত হচ্ছি। তার ফলে হোলো এই যে, আমাদের অবস্থাটা রয়ে গেল পূর্ববৎ, এমন কি, তার চেয়ে কয়েক ডিগ্রি নিচের দিকে,

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অর্থ আমাদের মেজাজটা ধার করে এনেছি অন্ত দেশ থেকে যেখানে সমারোহের সঙ্গে তহবিলের বিশেষ আড়াআড়ি নেই।

মনে ক'রে দেখো না, এদেশে বহু রোগজর্জের জনসাধারণের আরোগ্য বিধানের জন্মে রিস্ক রাজকোষের দোহাই দিয়ে ব্যয়সঞ্চাচ করতে হয়, দেশজোড়া অতি বিরাট মূর্খতার কালিমা যথোচিত পরিমার্জন করতে অর্থে কুলোয় না, অর্ধাং যে সব অভাবে দেশ অন্তরে বাহিরে ঘৃত্যুর তলায় তলাক্ষে তার প্রতিকারের অতি ক্ষীণ উপায় দেউলে দেশের মতোই, অর্থ এদেশে শাসনব্যবস্থায় ব্যয়ের অজস্র প্রাচুর্য একেবারেই দরিদ্র দেশের মতো নয়। তার ব্যয়ের পরিমাণ স্বয়ং পাঞ্চাত্য ধনী দেশকেও অনেক-দূর এগিয়ে গেছে। এমন কি বিষ্ণাবিভাগের সমস্ত বাহু ঠাট বজ্রায় রাখবার ব্যয় বিষ্ণা-পরিবেষণের চেয়ে বেশি। অর্ধাং গাছের পাতাকে দর্শনধারী আকারে ঝাঁকড়া ক'রে তোলবার খাতিরে ফল ফলাবার রস জোগানে টানাটানি চলেছে। তাহোকু, এর এই বাইরের দিকের অভাবের চেয়ে এর মর্মগত গুরুতর অভাবটাই সব চেয়ে দুর্চিন্তার বিষয়। সেই কথাটাই বলতে চাই। সেই অভাবটা শিক্ষার যথাযোগ্য আধারের অভাব।

আজকালকার অঙ্গ-চিকিৎসায় অঙ্গ-প্রত্যক্ষে বাইরে থেকে জোড়া লাগাবার কৌশল ক্রমশঃই উৎকর্ষ লাভ করেছে। কিন্তু বাইরে থেকে জোড়লাগা জিনিষটা সমস্ত কলেবরের সঙ্গে প্রাণের মিলে মিলিত না হোলে সেটাকে সুচিকিৎসা বলে না। তার ব্যাণ্ডেজ-বন্ধনের উন্নয়নের প্রভৃতি পরিষ্কীতি দেখে স্বয়ং রোগীর মনেও গর্ব এবং তৃপ্তি হোতে পারে কিন্তু মুমুর্শ প্রাণপুরুষের এতে সামুদ্রনা নেই। শিক্ষা-সম্বন্ধে এই কথাটা পূর্বেই বলেছি। বলেছি, বাইরের থেকে আহরিত শিক্ষাকে সমস্ত দেশ যতক্ষণ আপন করতে না পারবে ততক্ষণ তার বাহু-উপকরণের দৈর্ঘ্যপ্রস্তুত পরিমাপটাকে হিসাবের খাতায় লাভের কোঠায় ফেললে ছঙ্গিকাটা ধারের টাকাটাকে মূলধনহারা ব্যবসায়ে মুনফা ব'লে আনন্দ করার মতো হয়। সেই আপন করবার সর্বপ্রধান সহায় আপন ভাষা। শিক্ষার সকল খাত ঐ ভাষার রসায়নে আমাদের আপন খাদ্য হয়। পক্ষিশাবক গোড়া থেকেই পোকা থেয়ে মাঝুষ; কোনো মানব-সমাজে ইঠাং যদি কোনো পক্ষিমহারাজের একাধিপত্য ঘটে তাহোলেই কি এমন কথা

বলা চলবে যে, সেই রাজখাদ্যটা খেলেই মাঝুষ-প্রজাদেরও পাখা গঢ়িয়ে উঠবে ?

শিক্ষায় মাতৃভাষাই মাতৃহৃষ্ট, অগতে এই সর্বজনস্বীকৃত নিরতিশয় সহজ কথাটা বহুকাল পূর্বে একদিন বলেছিলেম আজও তার পুনরাবৃত্তি করব। সেদিন যা ইংরেজি শিক্ষার মন্ত্রমূল্ক কর্ণসূহরে অশ্রাব্য হয়েছিল আজও যদি তা লক্ষ্যপ্রষ্ট হয় তবে আশা করি পুনরাবৃত্তি করবার মাঝুষ বারে বারে পাওয়া যাবে।

আপন ভাষায় ব্যাপকভাবে শিক্ষার গোড়াপস্থন করবার আগ্রহ স্বভাবতঃই সমাজের মনে কাজ করে, এটা তার স্বচ্ছ চিন্তের লক্ষণ। রামমোহন রায়ের বচু পাত্রি এডাম সাহেবে বাংলা দেশের প্রাথমিক শিক্ষার যে রিপোর্ট প্রকাশ করেন তাতে দেখা যায় বাংলা বিহারে একলক্ষের উপর পাঠশালা ছিল ; দেখা যায়, প্রায় প্রত্যেক গ্রামেই ছিল জনসাধারণকে অন্তর্ভুক্ত : ন্যানতম শিক্ষাদানের ব্যবস্থা। এছাড়া, প্রায় তখনকার ধনৌমাত্রেই আপন চঙ্গীমণ্ডপে সামাজিক কর্তব্যের অঙ্গরূপে পাঠশালা রাখতেন, গুরুমশায় বৃত্তি ও বাসা পেতেন তাঁরই কাছ থেকে। আমার প্রথম অক্ষয়-পরিচয় আমাদের বাড়ির দালানে, প্রতিবেশী পোড়োদের সঙ্গে। মনে আছে, এই দালানের নিষ্ঠুত খ্যাতিহীনতা ছেড়ে আমার সতীর্থ আঘৌয় দুজন যখন অবৰথ-যোগে সরকারী বিষ্টালয়ে প্রবেশাধিকার পেলেন তখন মানহানির দৃঃসহ দৃঃখে অঙ্গপাত করেছি এবং গুরুমশায় আশৰ্দ্য ভবিষ্যৎ দৃষ্টির প্রভাবে বলেছিলেন, ঐখান থেকে কিরে আসবার ব্যর্থপ্রয়াসে আরো অনেক বেশি অঞ্চ আমাকে ফেলতে হবে। তখনকার প্রথম শিক্ষার জন্য শিশুশিক্ষা প্রভৃতি যেসকল পাঠ্যপুস্তক ছিল, মনে আছে অবকাশকালেও বার বার তার পাতা উল্টিয়েছি। এখনকার ছেলেদের কাছে তার প্রত্যক্ষ পরিচয় দিতে কুষ্ঠিত হব কিন্তু সমস্ত দেশের শিক্ষাপরিবেষ্টনের স্বাভাবিক ইচ্ছা এই অত্যন্ত গরীবভাবে ছাপানো বইগুলির পত্রপুটে রক্ষিত ছিল—এই মহৎ গৌরব এখনকার কোনো শিশুপাঠ্য বইয়ে পাওয়া যাবে না। দেশের খাল বিল নদী-নালায় আজ জল শুকিয়ে এল তেমনি রাজাৰ অনাদরে আধমৰা হয়ে এল সর্বসাধারণের নিরক্ষরতা দূর করবার স্বাদেশিক ব্যবস্থা।

দেশে বিষ্টাশিক্ষার বে সরকারী কারখানা আছে তার চাকায় সামাজিক কিছু বদল করতে হোলে অনেক হাতুড়ি পেটাপিটির দৱকার হয়। সে খুব শক্ত

হাতের কর্ম। সেই শক্তি হাতই ছিল আগু মুখজ্জেমশায়ের। বাঙালির হেলে ইংরেজি বিষায় বড়ই পাকা হোক তবু শিক্ষা পুরো করবার জন্যে তাকে বাংলা শিখতেই হবে, ঠেলা দিয়ে মুখজ্জেমশায় বাংলার বিশ্বিষ্টালয়কে এতটা দূর পর্যন্ত বিচলিত করেছিলেন। হয়তো ঐ পথটায় তার চলৎপদ্ধির সূত্রপাত করে দিয়েছেন, হয়তো তিনি বেঁচে থাকলে চাকা আরো এগোত। হয়তো সেই চালনার সঙ্গে মন্ত্রণাসভার দফ্তরে এখনো পরিণতির দিকে উন্মুখ আছে।

তবু আমি যে আজ উদ্বেগ প্রকাশ করছি তার কারণ, বিশ্বিষ্টালয়ের ধানবাহনটা অত্যন্ত ভারী এবং বাংলা ভাষার পথ এখনো কাঁচা পথ। এই সমস্তা সমাধান হুরাহ ব'লে পাছে হোতে-করতে এমন একটা অতি অস্পষ্ট ভাবীকালে তাকে ঠেলে দেওয়া হয় যা অসম্ভাবিতের নামান্তর—এই আমাদের ভয়। আমাদের গতি মন্দাক্রান্তা, কিন্তু আমাদের অবস্থাটা সবুর করবার মতো নয়। তাই আমি বলি, পরিপূর্ণ সুযোগের জন্যে স্বদীর্ঘকাল অপেক্ষা না ক'রে অল্প বহরে কাজটা আরম্ভ ক'রে দেওয়া ভালো, যেমন ক'রে চারাগাছ রোপণ করে সেই সহজ ভাবে। অর্থাৎ তার মধ্যে সমগ্র গাছের আদর্শ আছে, বাড়তে বাড়তে দিনে দিনে সেই আদর্শ সম্পূর্ণ হয়। বয়স্ক ব্যক্তির পাশে শিশু যখন দাঢ়ায় সে আপন সমগ্রতার সম্পূর্ণ ইঙ্গিত নিয়েই দাঢ়ায়। এমন নয় একটা ঘরে বছর ছয়েক ধ'রে ছেলেটার কেবল পা-খানা তয়ের হচ্ছে, আর একটা ঘরে এগিয়েছে হাতের কম্বইটা পর্যন্ত। এতদুর অত্যন্ত সর্তর্কতা সৃষ্টিকর্তার নেই। সৃষ্টির তুমিকাতেও অপরিণতি সঙ্গেও সমগ্রতা থাকে।

তেমনি বাংলা-বিশ্বিষ্টালয়ের একটি সজীব সমগ্র শিশুমূর্তি দেখতে চাই। সে মূর্তি কারখানা ঘরে তৈরি খণ্ড-খণ্ড বিভাগের ক্রমশঃ যোজনা নয়। বয়স্ক বিষায়ের পাশে এসেই সে দাঢ়াক্ত বালক-বিষায় হয়ে। তার বালক মূর্তির মধ্যেই দেখি তার বিজয়ী মূর্তি, দেখি লজাটে তার রাজাসন অধিকারের প্রথম টিকা।

বিষায়ের কাজে ধাঁরা অভিজ্ঞ তাঁরা জানেন একদল ছাত্র স্বভাবতঃই ভাষাশিক্ষায় অপটু। ইংরেজি ভাষায় অনধিকার সঙ্গেও যদি তারা কোনোমতে ম্যাট্রিকুলে দেউড়িটা পেরিয়ে যায়, উপরের সিঁড়ি ভাঙবার বেলায় ব'লে পড়ে, আর ঠেলা তোলা যায় না।

এই দুর্গতির অনেকগুলো কারণ আছে। একে তো যে ছেলের মাতৃভাষা বাংলা, ইংরেজি ভাষার মতো বাসাই তার আর নেই। ও যেন বিলিতি তলোয়ারের খাপে দিশি থাঁড়া ভরবার কসুৰৎ। তার পরে, গোড়ার দিকে ভালো শিক্ষকের কাছে ভালো নিয়মে ইংরেজি শেখার স্বয়েগ অন্ন ছেলেই হয়, গরিবের ছেলের তো হয়ই না। তাই অনেক স্থলেই বিশ্লেষকরণীয় পরিচয় ঘটে না ব'লেই গোটা ইংরেজি বই মুখস্থ করা ছাড়া উপায় থাকে না সে রকম ত্রেতাযুগীয় বীরত্ব ক'জন ছেলের কাছে আশা করা যায়।

শুধু এই কারণেই কি তারা বিভাগিতির থেকে অগুমানে চালান ধারার উপযুক্ত ? ইংলণ্ডে একদিন চুরির অপরাধে ছিল কাসি, এ যে তার চেয়েও কড়া আইন, এ যে চুরি করতে পারে না ব'লেই কাসি। না বুঝে বই মুখস্থ ক'রে পাস করা কি চুরি ক'রে পাস করা নয় ? পরীক্ষাগারে বইখানা চাদরের মধ্যে নিয়ে গেলেই চুরি, আর মগজের মধ্যে করে নিয়ে গেলে তাকে কী বলব ? আন্ত-বই-ভাঙ্গা উভয় বসিয়ে যারা পাস করে তারাই তো চোরাই কড়ি দিয়ে পারানি জোগায়।

তা হোক, যে উপায়েই তারা পার হোক নালিশ করতে চাই নে। তবু এ প্রশ্নটা থেকে যায় যে, বহু সংখ্যক যে-সব হতভাগা পার হোতে পারল না তাদের পক্ষে হাওড়ার পুলটাই না হয় ছ-ফাঁক হয়েছে কিন্তু কোনো রকমেই সরকারী খেয়াও কি তাদের কপালে জুটবে না, একটা লাইসেন্স-দেওয়া পান্সি, মোটর-চালিত নাইবা হোলো, না হয় হোলো দিশি হাতে দাঢ়ি-টানা ?

অঙ্গ স্বাধীন দেশের সঙ্গে আমাদের একটা মস্ত প্রভেদ আছে। সেখানে শিক্ষার পূর্ণতার জন্যে যারা দরকার বোঝে তারা বিদেশী ভাষা শেখে। কিন্তু বিদ্যার জন্যে ষেটকু আবশ্যক তার বেশি তাদের না শিখলেও চলে। কেননা তাদের দেশের সমস্ত কাজই নিজের ভাষায়। আমাদের দেশের অধিকাংশ কাজই ইংরেজি ভাষায়। থাঁরা শাসন করেন তারা আমাদের ভাষা শিখতে, অস্তত যথেষ্ট পরিমাণে শিখতে, বাধ্য নন। পর্বত নড়েন না, কাজেই সচল মানুষকেই প্রয়োজনের গরজে পর্বতের দিকে নড়তে হয়। ইংরেজি ভাষা কেবল যে আমাদের জানতে হবে তা নয়, তাকে ব্যবহার করতে হবে। সেই ব্যবহার বিদেশী আদর্শে যতই নিখুঁৎ হবে সেই পরিমাণেই যদেশের এবং

কর্তাদের কাছে আমাদের সমাদৰ। আমি একজন ইংরেজ ম্যাজিস্ট্রেটকে জানতুম; তিনি বাংলা সহজেই পড়তে পারতেন। বাংলা সাহিত্যে ঠার কলচির আমি প্রশংসা করবই কারণ রবীন্দ্রনাথের রচনা তিনি পড়তেন এবং পড়ে আনন্দ পেতেন। একবার গ্রামবাসীদের এক সভায় তিনি উপস্থিত ছিলেন। গ্রামবিত্তৈষী বাঙালি বক্তাদের মধ্যে ধাঁর বা বক্তব্য ছিল বলা হোলে পর ম্যাজিস্ট্রেটের মনে হোলো, গ্রামের লোককে বাংলায় কিছু বলা ঠারও কর্তব্য। কোনো প্রকারে দশ মিনিট কর্তব্য পালন করেছিলেন। গ্রামের লোকেরা বাড়ি ফিরে গিয়ে আঞ্চলিক জানাল যে, সাহেবের ইংরেজি বক্তৃতা এইমাত্র তারা শুনে এসেছে। পরতারা ব্যবহার সম্বন্ধে বিদেশীর কাছে খুব বেশি আশা না করলেও তাকে অসম্মান করা হয় না। ম্যাজিস্ট্রেট নিজেই জানতেন ঠার বাংলা কথনের ভাষা এমন নয় যে, গৌড়জন আনন্দে যাহার অর্থবোধ করতে পারে সম্যক্ত। তাই নিয়ে তিনি হেসেও ছিলেন। আমরা হোলে কিছুতেই হাসতে পারতুম না, ধরণীকে অঙ্গুনয় করতুম দ্বিধা হোতে। ইংরেজি সম্বন্ধে আমাদের বিদেশিহের কৈফিয়ৎ আঞ্চলিক বা অনাঞ্চলিক সমাজে গ্রাহ হয় না। একদা বিখ্বিত্যাত জর্মান তত্ত্বানী অয়কেনের ইংরেজি বক্তৃতা শুনলে আমি বুঝতে পারি—সেটা ইংরেজি। কিন্তু অয়কেনের ইংরেজি শুনে আমার ধাঁধাঁ। লেগেছিল। এ নিয়ে অয়কেনকে অবজ্ঞা করতে কেউ পারে নি। কিন্তু এই দশা আমার হোলে কী হোত সে কথা কল্পনা করলেও কর্ণফুল রক্তবর্গ হয়ে ওঠে। বাবু-ইংলিশ নামে নিরতিশয় অবজ্ঞাসূচক একটা শব্দ ইংরেজিতে আছে, কিন্তু ইংরেজি-বাংলা তার চেয়ে বহুগুণে বিকৃত হোলেও ওটাকে অনিবার্য ব'লে মেনে নিই, অবজ্ঞা করতে পারিনে। আমাদের কারো ইংরেজিতে ক্রটি হোলে দেশের লোকের কাছে সেটা যেমন হসনীয় হয় এমন কোনো প্রহসন হয় না। সেই হাসির মধ্য থেকে পরাধীনতারই কলঙ্ক দেখা দেয় কালো হয়ে। যতদিন আমাদের এই দশা বহাল থাকবে ততদিন আমাদের শিক্ষাভিমানীকে কেবল যথেষ্ট ইংরেজি নয়, অতিরিক্ত ইংরেজি শিখতে হবে। তাতে যে অতিরিক্ত সময় লাগে সেই সময়টা যথোচিত শিক্ষার হিসাব থেকে কাটা যায়। তা হোক, অত্যাবশ্যকের চেয়ে অতিরিক্তকে যতদিন আমাদের মেনে চলতেই হবে

ততদিন ইংরেজি ভাষায় পেটাইকরা বিশ্ববিদ্যালয়ের বিজ্ঞানীয় ভার আমাদের আগাগোড়াই বহন করা অনিবার্য। কেননা ভালো ক'রে বাংলা শেখার সামাজিকভাবে ভালো ক'রে ইংরেজি শেখার সহায়তা হोতে পারে একথা মনে করতে সাহস হবে না। গরজটা অভিশপ্ত জরুরি তাই মন বলতে ধাকে কী জানি! আমার সেই অভিভাবকের মতো অভিভাবক বাংলা দেশে বেশি পাওয়া যাবে না, তাই বেশি দাবী ক'রে লাভ নেই। বাংলা বিশ্ববিদ্যালয়ের একেব্রহ্মের অধিকার আজ সহ হবে না। নৃতন স্বাধীনতার দাবীকে পুরাতন অধীনতার সেফ্র্গার্ডসের স্বারা বেঢ়া তুলে দেবার আবাস না দিতে পারলে সবটাই কেঁসে যেতে পারে এই আমার তয়। তাই বলছি আমাদের বিশ্ববিদ্যালয়ের ভিতরের দালানে বিদ্যার ভোজের যে-আয়োজন চলছে তার রাঙাটা বিলিতি মস্লায়, বিলিতি ডেক্টিতে, তার আহারটা বিলিতি আসনে বিলিতি পাত্রেই চলুক; তার জগ্নে প্রাণপণে আমরা যে মূল্য দিতে পারি তাতে ভূরি-ভোজের আশা করা চলবে না। যারা কার্ড পেয়েছে তারা ভিতর মহলেই বস্তুক আর যারা মুবাহুত বাইরের আভিনায় তাদের জগ্নে পাত পেড়ে দেওয়া যাব্ব না। টেবিল পাতা নাই হোলো, কলা পাত পড়ুক।

বাংলা দেশে উচ্চ শিক্ষাকে চিরকাল অথবা অতি দীর্ঘকাল পরামর্শদোষী পরাবস্থায় হয়ে ধাকতেই হবে কেননা এ ভাষায় পাঠ্যপুস্তক নেই,—এই কঠিন তর্ক তুললে একদা সেটা কথা-কাটাকাটির ঘূর্ণি হাওয়াতেই আবর্ণিত হোতে পারত, দূর দেশ ছাড়া কাছের পাড়া থেকে দৃষ্টান্ত আহরণ ক'রে ঐ উৎপাত্তাকে শাস্ত করা যেতে পারত না। আজ হাতের কাছেই স্মরণে মিলেছে।

ভারতের অঙ্গান্ত বিশ্বিজ্ঞালয়ের তুলনায় দক্ষিণ হায়দ্রাবাদ বয়সে অল্প, সেই জন্যই বোধ করি তার সাহস বেশি, তা ছাড়া একথাও বোধ করি সেখানে স্বীকৃত হওয়া সহজ হয়েছে বে, শিক্ষাবিধানে কৃপণতা করার মতো নিজেকে কাঁকি দেওয়া আর কিছুই হোতে পারে না। ঐ বিশ্বিজ্ঞালয়ে অবিচলিত নির্ণয় সহায়তায় আভস্তমধ্যে উর্দ্ধ ভাষার প্রবর্তন হয়েছে। ভারি প্রবল তাড়নায় ঐ ভাষায় পাঠ্যপুস্তক রচনা প্রায় পরিপূর্ণ হয়ে উঠল। ইমারংও হোলো, সিঁড়িও হোলো; নিচে থেকে উপরে লোক-বাতাসুর

চলছে। হোতে পারে, সেখানে যথেষ্ট সুযোগ ও স্বাধীনতা ছিল। কিন্তু তবুও চারিদিকের প্রচলিত মত ও অভ্যাসের হস্তর বাধা অভিজ্ঞম ক'রে যিনি এমন মহৎ সংকলকে মনে এবং কাজের ক্ষেত্রে স্থান দিতে পেয়েছেন সেই আকরণ হয়দরিয়ের সাহসকে ধস্ত বলি। বিনা দ্বিধায় জ্ঞান-সাধনার দুর্গমতাকে তাঁদের মাতৃভাষার ক্ষেত্রে সমতুল্য করে দিয়ে উর্দুভাষীদের তিনি যে মহৎ উপকার করেছেন তার দৃষ্টান্ত যদি আমাদের মন থেকে সংশয় দূর এবং শিক্ষা-সংস্কৃতির বিলম্বিত গতিকে ভরাছিত করতে পারে তবে একদা আমাদের বিশ্ববিজ্ঞান অঙ্গ সকল সভ্য দেশের বিশ্ববিজ্ঞানের সমপর্যায়ে দাঢ়িয়ে গোরব করতে পারবে। নইলে প্রতিদ্বন্দ্বিতা সঙ্গে একই মূল্য দাবি করবে কোনু স্পর্শায় ? বনস্পতির শাখায় যে-পরগাছা বুলছে সে বনস্পতির সমতুল্য নয়।

বিদেশ থেকে যেখানে আমরা যন্ত্র কিনে এনে ব্যবহার করি সেখানে তার ব্যবহারে তরে ভরে অক্ষরে অক্ষরে পুঁথি মিলিয়ে চল্পতে হয় কিন্তু সজীব গাছের চারার মধ্যে তার আঘাতালনা আঘাতপরিবর্জনার তত্ত্ব অনেক পরিমাণে ভিতরে ভিতরে কাজ করতে থাকে। যন্ত্র আমাদের স্বায়ত্ত্ব হোতে পারে কিন্তু তাতে আমাদের স্বাহুবর্ত্তিতা থাকে না। স্বাধীন পরিচালনার ক্ষেত্রে যেখানে শাশ্বত কলেজ গড়া হয়েছে, হিন্দুবিশ্ববিজ্ঞান শাপনায় যেখানে দেখা গেল অর্থব্যয় অজ্ঞ হয়েছে, সেখানেও ছাঁচ-উপাসক আমরা ছাঁচের মুঠো থেকে আমাদের স্বাতন্ত্র্যকে কিছুতে ছাড়িয়ে নিতে পারছিনে। সেখানেও শুধু যে ইংরেজি মুনিভর্সিটির গায়ের মাপে ছেঁটে ছুঁটে কুর্সি বানাচ্ছি তা নয়, ইংরেজের জমি থেকে তার ভাষাসূক্ষ উপড়ে এনে দেশের চিঞ্চক্ষেত্রকে কোদালে কুড়ুলে ক্ষত বিক্ষত ক'রে বিরুদ্ধ স্থূলিতে তাকে রোপণের গলদ্বৰ্ষ চেষ্টা করছি ; তাতে শিকড় না ছড়াচ্ছে চারিদিকে, না পৌঁছচ্ছে গভীরে।

বাংলাভাষার দোহাই দিয়ে যে-শিক্ষার আলোচনা বারদ্বার এনেছি তার মূলে আছে আমার ব্যক্তিগত অভিজ্ঞতা। যখন বালক ছিলেম, আশ্চর্য এই যে, তখন অবিমিশ্র বাংলা ভাষায় শিক্ষা দেবার একটা সরকারী ব্যবহা ছিল। তখনো যে-সব স্কুলের রাস্তা ছিল কলকাতা মুনিভর্সিটির প্রবেশদ্বারের দিকে ভূমিত, যারা ছাত্রদের আবাস্তি করাচ্ছিল he is up ভিত্তি হল ঝগরে,

বাবা ইংরেজি I সর্বনাম শব্দের ব্যাখ্যা মুখ্য করাচ্ছিল, I by itself I তাদের আহ্বানে সাড়া দিচ্ছিল সেই সব পরিবারের ছাত্র বাবা ভজসমাজে উচ্চ পদবীর অভিমান করতে পারত। এদেরই দূর পার্শ্বে সমৃচ্ছিতভাবে ছিল প্রথমোক্ত শিক্ষাবিভাগ, ছাত্রবৃত্তির পোত্তোদের জন্ত। তারা কনিষ্ঠ অধিকারী, তাদের শেষ সদগতি ছিল নর্মাল স্কুল নামধারী মাধ্য-হেঁট-করা বিটালয়ে। তাদের জীবিকার শেষ লক্ষ্য ছিল বাংলা বিটালয়ে স্বল্পসমৃষ্ট বাংলা পণ্ডিতী ব্যবসায়ে। আমার অভিভাবক সেই নর্মালস্কুলের দেউড়ি বিভাগে আমাকে ভর্তি করেছিলেন। আমি সম্পূর্ণ বাংলা ভাষার পথ দিয়েই শিখেছিলেম ঝুঁগোল, ইতিহাস, গণিত, কিছু পরিমাণ প্রাকৃত বিজ্ঞান, আর সেই ব্যাকরণ যার অঙ্গাঙ্গে বাংলা ভাষা সংস্কৃত ভাষার আভিজ্ঞাত্যের অঙ্গকরণে আপন সাধু ভাষার কৌশলীয় ঘোষণা করত। এই শিক্ষার আদর্শ ও পরিমাণ বিষ্টা হিসাবে তখনকার ম্যাট্রিকের চেয়ে কম দরের ছিল না। আমার বাবো বৎসর বয়স পর্যন্ত ইংরেজি-বর্জিত এই শিক্ষাই চলেছিল। তার পরে ইংরেজি বিটালয়ে প্রবেশের অন্তিকাল পরেই আমি ইস্কুলমাটারের শাসন হতে উর্ধবাসে পলাতক।

এর ফলে শিশুকালেই বাংলা ভাষার ভাগুরে আমার প্রবেশ ছিল অবারিত। সে ভাগুরে উপকরণ যতই সামান্য থাক শিশু-মনের পোষণ ও তোষণের পক্ষে যথেষ্ট ছিল। উপবাসী মনকে দীর্ঘকাল বিদেশী ভাষার চড়াই পথে খুঁড়িয়ে খুঁড়িয়ে দম হারিয়ে চলতে হয় নি, শেখার সঙ্গে বোঝার প্রত্যহ সাংঘাতিক মাধ্য-ঠোকাঠুকি না হওয়াতে আমাকে বিটালয়ের ইঁসপাতালে মাঝুষ হोতে হয়নি। এমন কি, সেই কাঁচা বয়সে যখন আমাকে ‘মেঘনাদবধ’ পড়তে হয়েছে তখন একদিন মাত্র আমার বাঁ গালে একটা বড়ো চড় খেয়েছিলুম, এইটোই একমাত্র অবিস্মরণীয় অপদ্রাত ; যতদূর মনে পড়ে মহাকাব্যের শেষ সর্গ পর্যন্তই আমার কানের উপরেও শিক্ষকের হস্তক্ষেপ ঘটেনি, অথবা সেটা অত্যন্তই বিরল ছিল।

কৃতজ্ঞতার কারণ আরো আছে। মনের চিন্তা এবং তাব কথায় প্রকাশ করবার সাধনা শিক্ষার একটি প্রধান অঙ্গ। অন্তরে বাহিরে দেওয়া নেওয়ার এই অক্ষিয়ার সামঞ্জস্য সাধনই সুব্রহ্মণ্যের লক্ষণ। বিদেশী ভাষাই প্রকাশ-চর্চার প্রধান অবলম্বন হোলে সেটাতে যেন মুখ্যসের ভিতর দিয়ে

ଭାବ ପ୍ରକାଶେର ଅଭ୍ୟାସ ଦୀଢ଼ାଇଁ । ମୁଖୋସ-ପରା ଅଭିନନ୍ଦ ଦେଖେଛି, ତାତେ ହାଁଚେ-ଗଡ଼ା ଭାବକେ ଅବିଚଳ କ'ରେ ଦେଖାନ ଯାଏ, ଏକଟା ବୀଧା ସୀମାନାର ମଧ୍ୟେ, ତାର ବାଇରେ ଆଧୀନତୀ ପାଓଙ୍ଗା ଥାଏ ନା । ବିଦେଶୀର ଭାବର ଆବରଣେର ଆଡ଼ାଲେ ପ୍ରକାଶେର ଚର୍ଚା ସେଇ ଜାତେର । ଏକଦା ମଧୁସୂଦନେର ମତ ଇଂରେଜି ବିଭାଯ ଅସାମାନ୍ୟ ପଣ୍ଡିତ ଏବଂ ବକ୍ଷିମଚନ୍ଦ୍ରେର ମତ ବିଜାତୀୟ ବିଭାଲ୍ଲମ୍ବେର କୃତି ଛାତ୍ର ଏହି ମୁଖୋସର ଭିତର ଦିଯେ ଭାବ ବାଂଗାତେ ଚେଷ୍ଟା କରେଛିଲେନ, ଶେବକାଳେ ହତାଶ ହେଁ ସେଟା ଟେନେ ଫେଲେ ଦିତେ ହୋଲେ ।

ରଚନାର ସାଧନା ଅମ୍ବିନ୍ଡେଇ ସହଜ ନାହିଁ । ସେଇ ସାଧନାକେ ପରଭାଷାର ଦ୍ୱାରା ଭାରାକୁଣ୍ଡ କରିଲେ ଚିରକାଳେର ମତୋ ଭାକେ ପଞ୍ଚ କରାର ଆଶ୍ରମ ଥାକେ । ବିଦେଶୀ ଭାଷାର ଚାପେ ବାମନ-ହେୟା ମନ ଆମାଦେର ଦେଶେ ନିଶ୍ଚଯିତା ବିଷ୍ଟର ଆଛେ । ଅର୍ଥମ ଥେବେଇ ମାତୃଭାଷାର ସ୍ଵାଭାବିକ ସୁଧୋଗେ ମାତୃଷ ହୋଲେ ସେଇ ମନ କୀ ହୋଇତେ ପାରନ୍ତ ଆନ୍ଦୋଜ କରନ୍ତେ ପାରିଲେ ବ'ଳେ ତୁଳନା କରନ୍ତେ ପାରିଲେ ।

যাই হোক, ভাগ্যবলে অধ্যাত নশ্বালস্কুলে ভর্তি হয়েছিলুম, তাই কচিবয়সে রচনা করা ও কুস্তি করাকে এক ক'রে তুলতে হয়নি; চলা এবং রাস্তাখোড়া ছিল না এক সঙ্গে। নিজের ভাষায় চিঞ্চাকে ফুটিয়ে-তোলা সাজিয়ে-তোলার আনন্দ গোড়া থেকেই পেয়েছি। তাই বুঝেছি মাতৃভাষায় রচনার অভ্যাস সহজ হয়ে গেলে তার পরে যথাসময়ে অন্ত ভাষা আয়ত্ত ক'রে সেটাকে সাহসপূর্বক ব্যবহার করতে কলমে বাধে না, ইংরেজির অতিপ্রচলিত জীর্ণ বাক্যাবলী সাবধানে শেলাই ক'রে ক'রে কাঁধা বুন্তে হয় না। ইঙ্গুল-পালানে অবকাশে ঘেঁষুকু ইংরেজি আমি পথে-পথে সংগ্রহ করেছি সেঁষুকু নিজের খুসিতে ব্যবহার করে ধাকি; তার অধান কারণ শিশুকাল থেকে বাংলাভাষায় রচনা করতে আমি অভ্যস্ত। অস্তত আমার এগামো বছর বয়স পর্যন্ত আমার কাঁছে বাংলাভাষার কোনো প্রতিষ্ঠা ছিল না। রাজসমানগর্ভিত কোনো স্ময়োরাণী তাকে গোয়ালদৰের কোণে মৃখচাপা দিয়ে রাখেনি। আমার ইংরেজি শিক্ষায় সেই আদিম-দৈন্তসম্বৰেও পরিমিত উপকরণ নিয়ে আমার চিন্তাটি কেবল মৃহিণীদের জোরে ইংরেজি-জানা উদ্দেশ্যার্থে আমার মান বাঁচিয়ে আসছে; যা-কিছু ছেঁড়া ফাটা, যা-কিছু মাপে ধাটো তাকে কোনো মুকম্বে ঢেকে বেড়াতে পেরেছে; নিশ্চিত জানি তার কারণ

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শিশুকাল থেকে আমার মনের পরিণতি ঘটেছে কোনো-ভেঙ্গেল-না-দেওয়া মাতৃভাষার; সেই খাদ্য খাদ্যবস্তুর সঙে যথেষ্ট খাদ্য-প্রাণ ছিল, যে খাদ্য-প্রাণে স্থিতিকর্তা তাঁর জাহুমন্ত্র দিয়েছেন।

অবশ্যেই আমার নিবেদন এই যে, আজ কোনো ভগীরথ বাংলাভাষায় শিক্ষাস্ত্রোত্তকে বিশ্ববিদ্যার সমূজ পর্যন্ত নিয়ে চলুন, দেশের সহস্র সহস্র মন মূর্খতার অভিশাপে প্রাণহীন হয়ে পড়ে আছে; এই সঙ্গীবনীধারার স্পর্শে বেঁচে উঠুক, পৃথিবীর কাছে আমাদের উপেক্ষিত মাতৃভাষার লজ্জা দূর হোক, বিদ্যাবিতরণের অন্তর্স্ত স্বদেশের নিয়সম্পদ হয়ে আমাদের জ্ঞাতিধ্যের গৌরব রক্ষা করুক।

জানিনে, হয়তো অভিজ্ঞ ব্যক্তি বলবেন একথাটা কাজের কথা নয়, এ কবি-কল্পনা। তা হোক, আমি বল্ব, আজ পর্যন্ত কেজো-কথায় কেবল জোড়াতাড়ার কাজ চলেছে, স্থিতি হয়েছে কল্পনার বলে।

EXAMINATIONS

*A Lecture delivered by Dr. W. A. Jenkins, D.Sc., I.E.S.
on 1st February 1936.*

Every thoughtful educationist has his own ideals. Every controlling authority in its policy expresses or should express what it considers to be the chief aims of the educational system for which it is responsible. Books without number have been written indicating what should be the object of education. These have varied from the most utilitarian to the most idealistic. Different countries have biased their aims in accordance with their national ideals and policies and different educationists have at various times to give practical expression to their theories. In practice, however, we find that in most countries of the world and in India in particular whatever may be the theoretical ideals prominent in the minds of both educationists and controlling authorities the dominating motive in education is to-day examinations. We educate not for life or culture or employment, but for examinations. The extent to which this is true varies of course throughout the different countries of the world, but it is, I think, not unfair to say that in the average school in any country the dominating influence upon the school authority and the school work is not the ideals of the educationists, but the examination demands of those who have come to have in practice such a controlling influence upon school work. From all sides there come demands that through an examination a hall-mark shall be given to a boy or a girl which will enable outside authorities to judge of his or her capacity and ability. Universities, Governments, local authorities, business firms and the world at large join in demanding that this examination hall-mark and fetish shall be worshipped assiduously and universally. I am aware that there are exceptions to this rule and that there are both individuals and institutions who have revolted against this tyrannical control of our educational system, but it still remains a fact that in the main we are examination-controlled. If such is the case, and I think we must admit that it is, then we must ask ourselves the question as to whether this consideration of examinations as all important is justified. When we have answered that question—and whatever be our answer

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it will be clear that they must be retained in some or other—the further question arises as to whether they are reliable. I have to-day chosen this as the subject of my lecture because of the fact that in Bengal as in other countries examinations are, I believe, rapidly becoming tyrannical and soul-destroying masters instead of remaining, as they should be, useful servants.

I do not wish what I have said or shall say to be construed as an attack upon any particular body—Government, University or the schools themselves. We have drifted into the present condition of affairs partially through following the examples set in other countries and partially through the lack of a co-ordinated and far-sighted policy developing the educational work of the country as an entity instead of leaving it disconnected and isolated units. No one party can be entirely blamed as no one party can be held entirely guiltless.

Most of you, who are here gathered, are teachers or persons interested in the secondary schools of our province. You are aware as to how completely the Matriculation Examination dominates the whole life of the school. A school's efficiency is judged very largely by the number and percentage of successful candidates at the University examination. Even Government has been known to take Matriculation results as the criterion upon which a school is primarily judged. Parents, guardians and the public generally are satisfied when the results are good ; they are dissatisfied when any suggestion is made that time, money and energy shall be devoted to activities not directly concerned with this examination. This dominance is more prominent in this country than elsewhere because of the fact that unfortunately there are at present few avenues of employment open to the boy who passes wholly or partially through the high school without having undergone University training. In the West, banks, industrial firms, commercial undertaking, farming, etc., call for the employment of large number of youths who have undergone education up to the high school stage, but who have not gone through the University. Many of the industrial firms indeed would regard a University training as a disqualification rather than as a qualification. I am not certain that this has not had an healthy influence upon school life. It is true that some of these organisations are to-day demanding that the hall-mark of such training in the high schools shall be the Matriculation Certificate, but this is fortunately not universal. The condition of affairs here is different. Rightly or wrongly, all parents aspire to seeing

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their children through the University course. They are aware that there is small prospect of success in life unless a boy shows himself to be brilliant not only in school, but also in the University. The result is that secondary education has come to be regarded as a preparation for a University career rather than as a preparation for life. It is not surprising therefore that under these circumstances the necessity for ensuring that maximum number of boys pass Matriculation Examination has had such a potent influence upon school life. The Matriculation Examination being a test of fitness for undergoing further training in academic studies, naturally the University has, following the lead given in England and elsewhere, moulded its Matriculation Examination upon academic lines ; these lines being generally so drawn that they lead directly to further study in particular subjects.

I need hardly remind you that, however, important the problem of entering the University may be, academic knowledge in particular subjects is not the sole purpose for which education is devised and for which schools are organised. To only a small percentage of the boys or girls in a school will academic knowledge in particular subjects be of direct use in their after life. Even the profession in which it is of most use, namely, that of teachers, demands for its efficient practice qualities other than those which of necessity follow from the possession of detailed academic information. In other professions the actual knowledge that is afterwards required is acquired, not during school days or even University days, but in the practice of the profession itself. The qualities most useful to the average citizen—man or woman, both in their professions and in their non-professional life—are logical thinking, understanding, organising capacity, unselfishness, ability to see the other man's point of view, ability to lead when leadership is demanded, willingness to obey when obedience is needed and above all an understanding of human relationships—individual, family social, national and international. These are the qualities which enter into every aspect of all human lives and which are continuously exercised or should be continuously exercised by every adult. It follows that if education is to be of the greatest value, then these qualities should be developed and their importance emphasized in our educational system. Few of you, I think, will be inclined to dispute this point of view, but yet, when we consider our present school system with its fetish of examinations we realise

that the dominance which the latter assumed almost entirely prohibits the possibility of organising school life with a view specially to developing these particular qualities. In so far as examinations mean the exclusion of activities most suited for the development of these qualities, they, instead of being assets, are definite hindrances to our educational work. This point of view, of course, is not original. It has been stressed repeatedly by educationists in many lands. Few thoughtful people disagree with it. We may well ask ourselves therefore how it is that this ideal has, in practice, received such little support and had so little influence upon school organising authorities. It is due very largely, I think, to the fact that those who are most interested in secondary education and best fitted to know its aims and purposes have so little influence upon actual school policy.

The University is primarily a University authority. It sees its own needs and legislates accordingly. Parents, guardians and employing authorities follow the traditional point of view and have neither the time nor the educational experience to allow them to think more clearly upon the problem. The vast competitive system into which the world's nations and communities have drifted—I might almost say hopelessly drifted—demands that human beings shall be labelled as possessing certain qualities in the same way that commercial articles are guaranteed as reaching certain standards. It is the demand for this labelling which justifies an examination. That such labelling has its use cannot be denied, but what is forgotten is, that while the qualities of commercial productions can be accurately and scientifically classified, the different aspects of human capacity cannot be easily and indeed in many cases even approximately accurately assessed. Knowing this, how is it that we have come to regard a student who has passed an examination as satisfactorily prepared and one who has failed as unsatisfactory? That the belief has persisted so long indicates that there is a certain amount of truth in it, and I do not wish to intimate that this point of view is without its justification. In the main it is true. The passing of an examination does connote a certain content of knowledge, and perseverance and ability to convey to others one's own thoughts. That is what it is inferred by statement that an examination is a good servant.

Your and my main task is not that of finding justification for the abolition of examinations but rather that of convincing people that there is other valuable

works to be done and that the real work in a school is not necessarily connected with the particular examination at the end of a school career, but is the steady character-forming, vision-widening, understanding and inspiring work which should go on within the class room, in the playground and in the child's activities throughout the whole of childhood and adolescent life.

This aspect of educational work needs to be particularly emphasized in this country. Nearly all the external pressure which is brought to bear upon questions of educational development act in one direction—that direction is towards the examination goal. It is all the more essential therefore that you, who have a wider vision, should use your influence and your knowledge to ensure that other aspects of school life are not neglected and that examinations are relegated to their proper position—that position being a comparatively unimportant one.

Having emphasized the relative unimportance of examinations, let me state without reservation that in some form or other they are indispensable.

There are few educationists, no matter how idealistic their standpoint may be, who would advocate the abolition of examinations as a practical measure. They must still persist and find a place in our educational system. It is all the more essential therefore that if examinations must be retained—and I do not think that any other course is possible—then they must be so understood and so organised as to guarantee that they are performing their functions efficiently. There have lately been many enquiries into the conduct of examinations and the result of those enquiries have, to say the least, been very disquieting. Those of us who have had considerable experience as examiners and who have taken the trouble to analyse and investigate examination results have known for some time that when unmodified they are extremely unreliable and that there are many factors which affect their trustworthiness. We know with certainty that not infrequently examinations fail to do adequately the work which they are supposed to do. If through examinations we attempt and pretend to give a certain hall-mark implying definite standards of ability and knowledge, then unless we can guarantee that the hall-mark is genuine, it is clear that our work as examiners or controllers of examinations is useless. There has recently been organised a very thorough enquiry carried out through the International Institute Examinations Enquiry Committee in different countries of the world. The

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Committee responsible for the investigation in England has summarised and published its conclusions in a book called "An Examination of Examinations." The conclusions have not only created great interest, but have raised storms of controversy which will not easily be stilled. That is all to the good. We may disagree with some of the conclusions, but many of their revelations are so startling that it is certain that eventually considerable modifications of present examination systems and methods must come. The book is now available for general readers (I have seen a copy in this Exhibition) and will well repay perusal. I do not propose therefore to refer in detail to many of their conclusions. My purpose will perhaps best be served by drawing your attention to the more important facts of examination theory. There are three main aspects of examinations to which I wish to draw your attention. First, what is the purpose of a particular examination? Secondly, is the examination so devised that that purpose can be carried out? Thirdly, is the examination so conducted that it may be considered reasonably satisfactory? I shall deal with these points in this order.

There are two chief types of examination. The first type is that which attempts to ascertain the capacity of a candidate and the contents of his knowledge in order that he may be classified educationally and intellectually as having reached a certain standard. Examples of this type of examination are the Matriculation and all University Examinations. Of course, in this category examinations differ very materially as to their nature. One may, for example, merely test the amount of knowledge that a candidate has acquired. Such knowledge consists mainly of facts and theories. Another may lay more emphasis upon understanding and less upon facts. The examination may be designed to test the fitness of the candidate to proceed to another course of study or to undertake work demanding certain technical proficiency. The main feature of this examination is that it is not competitive. Theoretically, all the candidates taking the examination may pass with First Class Honours or on the contrary may fail. One man's success does not necessarily imply another man's failure.

The second type of examinations is the purely competitive one in which no attempt is made to classify or determine the ability of individual candidates, but in which it is desired definitely to find out who is the best. Examinations

of this type are Civil Service and Scholarship Examinations. In general, the aim of a competitive examination is to ascertain which candidates have the greatest inherent ability. This fact is not usually appreciated and only too frequently examinations of the competitive type tend to become examinations as to the extent of acquired knowledge rather than a discriminating process designed to discover the ablest candidate. This may be made clear perhaps by a reference to the Civil Service Examination. As carried out, what often determines a candidate's chance of success is the aggregate marks obtained in the study of special subjects. A knowledge of these particular subjects will in practice be of little value to the candidate in the work he will have to undertake as a Civil Servant. It is his general intelligence, his capacity to learn and the capacity to make use of knowledge that will then be tested. Does an advanced examination in Physics, English Law or Physiology, to quote only a few, determine this? I think not.

These two types of examinations are fundamentally different in their purpose and should be designed and conducted accordingly. In the first type it is generally essential to make certain that a candidate has a knowledge of certain facts and theories and is in a position to apply that special knowledge in actual practice. Medical examinations, engineering examinations and the ordinary subjects in which a teacher may have to give instruction illustrate this point. There are many difficulties associated even with this type of examination, but the problems that they raise are in general simpler than those arising from the competitive type. Usually, it is possible to classify fairly accurately the majority of candidates. Border line cases do occur and are difficult, but as a rule an examiner knows with reasonable certainty the classification into which an individual candidate should fall. As will be shown later even here the greatest care has to be exercised if justice is to be done and grave errors occasionally occur, but the difficulties do not appear to be insuperable. In competitive examinations it is otherwise.

Our problem here is not that of placing individual candidates in certain broad classes, but that of accurately placing them in order of merit so that the candidate who is the best from the point of view of the particular purpose for which examination is designed shall come out on top. Every examiner is aware that it is quite impossible to place candidates in order of merit with

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certainty and that all that can be expected is to minimise the uncertainty and eliminate some of the more glaring causes of injustice. In a competitive examination the two chief sources of uncertainty are :—

(1) the defects arising from the fact that candidates are examined in different subjects and that it is extremely difficult to give marks useful for comparison in subjects so entirely different as for example Sanskrit and Chemistry;

(2) the unreliability of the examiners.

As to how important the first source of defect is may be understood by a brief discussion of, for example, Civil Service Examinations conducted by Government. In those examinations as you are aware candidates as well as being examined in compulsory subjects must choose a number of optional ones. These optional subjects offer a wide choice and although some are more frequently taken than others, the range is such that candidates have to be compared who have been tested in subjects so widely different as English, Physics, Chemistry, Mathematics, Law, Geography, Physiology, etc. Now while it is not possible in the case of any one paper, taken by a few students, to say that the standard of marking obtaining in one is easier or more favourable to the candidates than the standards adopted in another, an analysis of the marks obtained by a large number of candidates for a period of years does indicate any obvious inequalities in standards which may exist. When for example it is found that over a period of five years in subjects which have been taken by a large number of candidates in each year the average percentage obtained over the whole period is approximately 50 per cent. in one and 30 per cent. in the other, then it is clear that the examiners in the former subject are demanding a much lower standard of attainment from their candidates than the examiners in the latter. As the students come from different institutions and represent every range of capacity, it is certain that their average inherent ability will be much the same and therefore their average marks should approximate. The injustice arising from this is obvious. As the maximum number of marks allotted to each subject is 300, the student taking the former starts with a definite advantage of at least 60 marks. This is more than sufficient entirely to change the order of success of candidates. It is clear that where the number of candidates taking papers in any one year is large, the standards of marking

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can be brought to reasonable equality by adjusting all the marks in particular subjects so that the averages are the same. This is not practicable, however, in the case of subjects which are offered by a few candidates. Those few candidates may be specially good or specially bad, and it is quite unfair to adjust their average to that of the average of other subjects. This difficulty, therefore, remains one which cannot be entirely eliminated and which may in certain years result in the success of candidates being determined not by their ability, but by the particular subjects which they have chosen. The whole aim of the examination may thereby be defeated.

The attention of all examination bodies has of course been brought to this particular point and generally an attempt is made to minimise its effects. The introduction of *viva voce* examinations in which marks are allotted for general intelligence, general knowledge and personality together with the presence of compulsory subjects which must be taken by all candidates does something towards removing the danger arising from the inclusion of optional subjects. This expediency cannot, however, remove the danger entirely, and I am not sure personally that the object of a competitive examination like the Civil Service would not be best served by intelligence tests, *viva voce* examinations in compulsory subjects and, in lieu of the marks allotted to optional subjects, a consideration of the candidate's scholastic career.

This aspect of examination is one that is worthy of further discussion, but time will not allow more detailed consideration.

There is one type of competitive examination which in advanced countries has during recent years undergone very considerable change. That is the examination which seeks to determine not so much the content of knowledge acquired by students, but to indicate those who have capacity and inherent ability. The scholarship examinations which are held throughout England at age 11 for entrance to a secondary school and those scholarships which are given for pursuing a University course are examinations in which primarily the intelligence of a student is concerned and only secondarily the extent of the knowledge which he has previously acquired. In a book by C. W. Valentine called "The Reliability of Examinations," this problem has been discussed in detail. Valuable information is there given showing how the after-careers of scholarship-holders in schools and colleges justify or otherwise their selection.

They reveal the fact that in the former purely academic knowledge type of examination a large number of students obtained scholarships who, judging from their subsequent career, should not have done so. Moreover, an analysis of the relative merits of the students, to whom scholarships were awarded as judged by their after-careers, reveals the fact that the order of merit in one was not a reliable indication of their success in a secondary career. The results there given prove conclusively that for various reasons a purely academic examination in contents of knowledge of various subjects is far from a reliable guide as to the capacity of students. This is not to be wondered at when we consider that the students come from different types of homes, have been taught by different teachers and have been given different facilities by way of special preparation for the examination. Such an examination favours cramming and places at a disadvantage a student who has had the misfortune of being in an unsatisfactory school. Intelligence tests have in part been incorporated in many of these examinations in recent years and a following up of the careers of those students who have been selected under these new conditions shows quite conclusively that such tests are a far more reliable guide to the real abilities of the students than is the normal type of examination. If, therefore, it is the purpose of an examination to discover the real inherent intellectual capacity of a student and the probability as to its being worth while spending public money upon his further education, then the examination must, if it is to be reasonably discriminating, depart from the normal stereotyped text-book type and include some tests for which he will not be able to prepare and which will be dependent upon his powers of understanding and intellect. There is a great scope for the incorporation of these in some form or other in examinations in this country.

I shall now pass on to what is perhaps the most important and certainly the most contentious aspect of examinations. This is the unreliability of examiners. It has long been known that if a particular examination paper is submitted to a number of different examiners then the assessment of the value of the paper will vary. The variations are not necessarily within small limits. They are less in some subjects than others, but in certain cases may be so widely different as to result in a candidate being failed by one examiner while given a First Class by others. The publication of the book "An Examination of Examinations" with details of the experiment carried out has definitely proved

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what has been known to a number of educationists for some time past. Whatever may be the criticisms that may be levelled against their methods of enquiry or against the conclusions which they draw from individual experiments, the main facts are indisputable. Perhaps, it may be of value to quote some of their results. A number of School Certificate papers which had been assessed as equal and given with same number of marks in the actual examination were submitted to different examiners. These examiners were all experienced and, as far as could be determined, reliable. Their marks varied from 21 to 70. Moreover, 12 months later these examiners were again asked to mark the same scripts; their marks differed very materially from those which they allotted on the first occasion and in one case an examiner's mark differed by no less than 30 from his previous marking. As the maximum was 96, this indicated a deviation of nearly 33 per cent. in one individual estimate of a particular paper when examined it on two occasions.

From the examination which in France corresponds to Matriculation three papers which had been assessed as moderate in quality and given the same marks were re-examined by number of experienced examiners. The first paper was given marks varying from 4 to 52, the second from 12 to 64 and the third from 16 to 56. The maximum mark was 80.

Examinations in History, Latin, French and English seem to be particularly susceptible to personal opinion and variation with different examiners. In English out of 48 papers sent up one examiner failed 19, passed 12 and gave 17 credits, while another examiner failed only one, passed 16, gave 27 credits and 4 special credits. Perhaps the most important revelation which has come through this detailed investigation is the fact that a comparison of the average marks given by different examiners is no criterion whatever of their variability of marking with regard to individual candidates. In most subjects the averages tend to be the same. It is only when we study their distribution between the different candidates that we realise how extremely variable is their judgment of particular papers. As it is the individual marks which are of importance in determining a candidate's qualification and success in the competitive examination, it is clear that we have great reasons to doubt whether, as conducted at present, our examination results do reflect the real relative abilities of the students. Moreover, this uncertainty of assessment of

examinees, although minimised to a certain extent by making allowances and mutual discussion, cannot be entirely eliminated. It extends even to *viva voce* examinations conducted by Boards of Examiners. A study of the *viva voce* examination results of various examining Boards including that of the Civil Service Commissioners makes it quite clear that Boards of Examiners are almost as liable to be wrong in their assessment as is an individual examiner when marking an individual paper. In the previously mentioned enquiry two separate Boards of distinguished and experienced examiners varied considerably in their estimates and classification. Some of the methods which are followed for obviating the difficulties here mentioned may briefly be discussed. Many examining authorities issue to their examiners detailed instructions which attempt to fix a standard and give guidance as to the type of answer which is required. In certain cases these are very detailed but must of necessity be chiefly concerned with points of fact. Such instructions cannot entirely eliminate the private individual judgment of the examiner with regard to such questions as that of style, literary merit and theoretical discussions. Then again certain authorities, for example the German Government, do not believe in the holding of general examination conducted by an external authority, but prefer that the examination of candidates leaving school shall be conducted by some school authority together with a representative of the Government. The judgment of the teacher therefore upon the students' work throughout the year is brought to bear upon the final assessment. This would appear to be a satisfactory system, but is quite obviously only applicable to the non-competitive type of examination and merely classifies those who have reached certain desirable standards. Moreover, it depends upon the reliability of teachers and head-masters and even in Germany has been opposed by University authorities as resulting in the admission of students not sufficiently well qualified to benefit materially from a University course. It does, however, indicate a possible line of development. A third method which can be followed with prospects of success, particularly in elementary examinations, is that of setting a type of question for which there is only one correct answer. It means in general the replacement of a small number of broad questions by a very large number of narrow questions dealing with individual points.

Time will not allow of an adequate discussion regarding the way in which

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these experiments may lead to the desired end. It is my object merely to introduce you to the question so that some of you might begin experimenting and thinking about the problem in your own schools. So far in Bengal we have merely tried to follow the stereotyped and somewhat old-fashioned examinations commonly prevalent the world over. These are now definitely suspect and in all probability destined for radical reform.

If I have succeeded in arousing your interest in this problem, then the object of my lecture is fulfilled.

TEACHING OF ENGLISH.

A Lecture delivered by Miss MacArthur, on 1st February 1936.

Introduction.

The test of English teaching is the amount of enjoyment the children get out of the classes. Therefore the purpose of this paper is to discuss methods which I personally have found make an English class a pleasure both to teacher and children.

Every child finds its enjoyment in doing things for itself; therefore eyes, ears and lips should be brought into service from the start.

Listening and imitating stage.

The first lessons in English should take the form of talks about concrete things that the child sees around him. All that is said should be colloquial and not literary. It is wise not to trust to the inspiration of the moment but preparation should be made beforehand. Another point to remember is to avoid the use of Bengali, even when the children do not understand. The great thing is to let the children hear English so that they can absorb the sound of it—the exact meanings of words will come later. After listening to the sentences they can be repeated by the children.

Object Drill.

Begin with objects in the classroom, names of parts of the body, fruit, trees, flowers. Sentences can begin in a variety of ways—e.g. This is - - - It is - - - That is - - - Those are - - - . These are - - - After the teacher has given a few sentences the children should be given a chance to use the sentences, indicating the objects concerned. Later the teacher can point to the objects while the children supply the names.

Picture Drill.

Take any picture which is clear not too full of detail. Our first question could be—*What can you see?*—and every answer must consist of a complete sentence in which the words of the question should be used as far as possible.

The answers to begin with will take these forms—

I can see.....

I see a.....

In the picture I see a.....

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Three forms of sentences have been learnt and there will be great competition to use them.

Now we can vary the question—What is it? Who is this? What are these? Who are these?

Thus we have added four more.

The next questions may be—How many? Where?

In this way the children build their own sentences, e.g.

I can see three people.

They are in the shop. There are many toys.

They also learn to ask each other questions and answer them. E.g. Is there a man in this picture? No, there is not.

This will cover sufficient ground to carry on a conversation about things which the children see around them—in the class room—at home—in the playing field.

We have already engaged the eyes, ears and lips and it remains for them to learn to use their hands in writing the sentences which they have composed. They will choose the sentences for themselves and read them out when written. This gives them all a chance of showing some originality and also of correcting one another's mistakes. Nothing gives them more pleasure than to find mistakes in one another's work.

Descriptions.

We now reach the next stage which is the description of a picture giving only the necessary words with which to build their sentences. This is valuable constructive work and should never be allowed to deteriorate into merely learning the sentence by heart. Herein lies a vital principle. No text-book has yet been used and no single word has been learnt from a book. Each child is composing his own text-book of sentences as it goes on, and each sentence is learnt first and written afterwards which is exactly the opposite of the Text-Book method. If the descriptive method is used correctly each individual child will produce an entirely different spoken or written composition on the same picture. In addition it will be found that each child works at its own pace and should therefore be given a picture of his own. This ensures unaided effort, prevents copying, brings in the spirit of competition and shows each child's capacity.

The new words are written at the side. These should be learnt first and then the answers should be written. There is no need to translate any of the words into the Vernacular because the objects are indicated. The child will see the meanings of the words without being told. He will however have to be taught the English pronunciation of each word before he starts work. The children find great enjoyment and pride in seeing who can finish the largest number of cards in a period.

Imperative Drill.

In the first instance commands should be given by the teacher and obeyed by the whole class when convenient, or by a chosen child when this is not possible. At least five minutes of every period during the first two years should be given up to this. The teacher should set out to each one new word in each period. e.g. The word 'Show' could be taken. Show me your..... book.....slate.....pencil.....Show your book to Amar etc. or another example.—'near'—Stand near the door...the table..... Sit near..... Put your hand near.....

As a variation the children can give commands to one another.

Conversation.

This is the English which a boy really needs when he leaves school and by this method a good foundation can be laid together with much enjoyment for the whole class. Children will most readily discuss current events in the school, such as the latest football match, examinations, Prize Day and other functions, visitor to the school. This also gives endless scope for General Knowledge talks if the children know that their questions will receive a sympathetic hearing. One day on going into a class-room I was greeted with the question, "Is it true that trains run underneath the ground in London?"—this led to main discussions not only in that class but in another which demanded information on the subject too. Lantern talks, school outings give plenty of opportunities for discussion afterwards. A train journey or a picture of a train, leads to discussion on the steam engine, use of signals, various occupations etc.

Along with this care should be taken over pronunciation. This also can be made more interesting by putting marks over the syllable to be emphasised. Every boy begins Geography & History in the Junior School. The pronun-

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ciation of words remains in the memory when the word has been seen with accent marked.

To this should be added Dictation-making it into the form of a competition. It is useless to give this unless mistakes are corrected and as this takes time I usually let the children write their mistakes at home. Our boys are very keen on Dictation and in writing out mistakes and in some classes I am greeted with an eager "Dictation"? each day when I enter the room. Either that or....."Are you going to look at our corrections"?

Another point to be considered is to what extent children should be taught to *learn things by heart*. The answer, to my mind is, as much as possible as long as it is learnt through the ear and not from the printed page. Recitations, and small plays are always welcomed. Gramophone records may be pressed into service—when the children will learn Nursery Rhymes and short poems by unconscious assimilation—which is the best method of getting things by heart.

My last point deals with the *Text-Book*. Great care should be used in the selection. Personally I prefer Michael West's style of book—not because I have any financial interest in it but because of the following reasons which should be considered when a Text-Book is being chosen.

(1) A child's vocabulary ought to be developed gradually from the lowest to the highest stage.

(2) No unnecessary words ought to be introduced and the vocabulary should be confined to words in common use. Constant, though not wearying use of words and phrases during a period of years should ensure that they are remembered for life.

(3) But perhaps the most valuable part of series like this is the Composition book which corresponds with each class book. All kinds of exercises demanding thought are given. E.G. The children have learnt the word....."now" They then answer these questions.....Is.....living now?

King George
King Edward
your mother
your mother's mother etc.

or the word.....glass.

Show me some thing made of glass.

Is this paper made of glass?

Is all glass white?

Take this bit of glass.

Look through this piece of glass.

Give a bit of glass to your friend. etc.

This kind of word drill is always enjoyed because it contains the competitive element, and there is always the hope that the person chosen won't be able to do it. Most teachers find it difficult to interest the children in the application of what they have learnt from the text. This style of book gets over this difficulty most successfully.

The Composition book also introduces Substitution Tables. These are particularly valuable and can be compiled by any teacher using any book. Here again, if the table is used orally each child's desire is to be able to produce the last sentence of which no one else had thought, or if written work is done each hopes to write the most sentences.

There is no time to-day to develop the use of a text-book. Two points only I would emphasise—dramatise the stories and poems you read and encourage silent reading. Here again West helps us as each Text-Book has a supplementary Reader. This need not be bought by the boys, School Library copies can be used. The stories in this are based on the vocabulary already learnt. The books can be given to the children who read silently and then do the exercises on the story. Dramatising leads easily to the composition of a written play by the class which can be performed on Prize Day and the silent reading should always end with some expression work.

Our last heading should be examinations. This should present no difficulty if the child has been taught to enjoy its work. The younger the class the greater the number of questions required for the examination. This kind of paper gives no scope to a boy who merely learns his Text-Book by heart but is a test as to whether he can make practical use of the English he has been reading. I think you will all agree with me that this should be the main purpose which every teacher ought to have in mind.

THE TEACHING OF SPOKEN ENGLISH TO BENGALI CHILDREN.

*Lecture given at the Bengal Education Week by Rev. C. Milford
on 1st February 1936.*

In the future new methods and resources such as the use of gramophones and broadcasting may revolutionise our teaching of spoken English; but in order to make this lecture thoroughly practical I shall to-day only suggest some ways in which the pronunciation of English can be improved with our present resources.

The first question is, What are we to teach? There is to-day a definite dialect of English spoken in Bengal, just as there is a distinct dialect spoken in Scotland and America. Dr. Michael West says that this fact must be recognised and accepted. In his thesis on "Bilingualism in Bengal" he writes "It is not necessary for us to begin the Bengali's course in English by a laborious effort to make him pronounce English exactly like an Englishman We may be satisfied if he pronounces it correctly and consistently according to the facilities of his own language."

Dr. West takes as his chief criterion of correctness the test of *intelligibility*. The Bengali speaker of English must be understood by those whose native tongue is English. This test would rule out certain current pronunciations by Bengalis which tend to confuse pairs of words which should be distinguished; e.g. "bird" and "bard", "seat" and "sit" are often pronounced exactly alike by Bengali children. But this test again brings us face to face with other difficulties. To whom are we to be intelligible? I recently heard an English boy completely puzzled by the word "encourage" when spoken to him by a highly educated Bengali, who put slightly too much emphasis on the first and last vowels, (in'curidge would more or less represent the standard English pronunciation.) On the other hand if I say "world war" in my natural pronunciation to a class of first year College students, they look at me in blank astonishment. The only practicable aim seems to be to reduce some of the more

glaring divergences between the two styles of speaking, so that more and more what is intelligible to one group may also be intelligible to the other.

A book has recently been published called "English Speech for Asiatic Students" (Heffer & Sons) written by a teacher of English in Malaya. He distinguished eight main types of error in the English speech of Asiatic students. Of these, eight are applicable to Bengali students, and I shall deal in this lecture with the substance of five of these, grouping them under two main heads.

I. Confusion between long and short vowels.

This is specially common in the case of the sound "i", because in Bengali the letters ঈ and ঐ are not clearly distinguished in speaking, while in English there is a strongly marked difference between the short vowel in "sit" and the long in "seat". The point emerges in a striking way when an English word is naturalised in Bengali ; in the line from Rabindranath Tagore's "চুই বিধা জমি" করিল ডিকী, সকল বিক্রী মিথ্যা দেনার খতে।"

the two vowels of ডিকী are hardly distinguishable, whereas in "decree" it is very marked, the second vowel being strongly accented and lengthened. This point is important because confusion of the sounds may often lead to a confusion of the sense. Thus we may hear the Bengali boy say "I made the journey in a big sheep, or "the bad boy was bitten by his father". Perhaps it is the lengthening of the short sound which strikes the English ear most forcibly ; "Eef he comes een, ask him to seat down" ; but the shortening of the long sound is as common, and perhaps even more difficult to correct. At this time of year one hears much of displays of "physical fits" ; and the members of a class which I was recently coaching in recitation of Shakespear persisted in saying "Oh Slip, Oh gentle Slip, Nature's soft nurse."

This latter type of error, the shortening of long vowels, is very common also in the case of other sounds, specially those long vowels which in Southern English are always pronounced as diphthongs, though not so spelt. Thus the Bengali boy confuses "met" and "mate", "pet" and "pate", not realising that the second of each pair is pronounced with a long diphthong, "me-it". Many college students are specially confused by "test" and "taste", the

more so as their meanings approximate so closely in certain context. The same thing applies to the vowels in "go", "home" which are always long diphthongs—"gou". It is however good Scotch to pronounce these words with a pure vowel, like the Bengali "o" sound, but in that case the vowel must be given plenty of length.

II. The other main group of errors is concerned not so much with the separate sounds as with their use in connected speech. It comprises : *Faulty stress and rhythm*—in particular absence of sufficiently emphatic stress.

Bound up with this is *Overemphasis of unstressed vowels*.

Incorrect intonation,—in particular lack of sufficient variety in intonation.

These points are probably the most fundamental from the point of view of intelligibility ; but they are difficult to deal with and are more or less ignored in most of the text-books.

(N.B. This part of the lecture is impossible to reproduce in print without the use of the phonetic script and other special notation ; a bare summary only of the points is therefore given.)

One of the characteristic features of English is its very strong accent or stress ; moreover almost every important word has a stress, whereas in Bengali there is generally speaking only one main stress in each clause. The result of this is that all the short vowels in unstressed syllables are reduced to an indistinct "neutral" sound. This is in many ways regrettable ; it leads to hopeless confusion of the sound system in such pairs of words as "photograph" and "phography" ; and eloquence is helped by giving full value to the first and last syllables of such words as "conviction", instead of pronouncing it in the English way, "knvikshn". But failure to grasp this stress system is certainly one of the things which often makes it difficult for Englishmen to understand the English of foreigners.

With the strong stress goes a strongly marked rhythm. In the sentences "This is the house that Jack built" and "This is the house that Robinson built", the emphatic word "Jack" will occupy almost exactly the same time as the word "Robinson" inspite of its two extra syllables.

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Lastly, English is characterised by sharp and sudden rises and falls of the intonation, or musical pitch of the voice, for the indication of stress, emphasis, contrast etc. In Bengali the intonation tends to be kept much more on one level. This tends to give an air of monotony to a Bengali's reading or speaking of English, and it sometimes also makes it difficult to convey the proper sense. It is possible to give some fairly simple general rules for English intonation.

AGRICULTURAL EDUCATION IN SCHOOLS.

THE FARM

By MR. H. F. MILLER.

Following on Mr. Dewey's remark as to the necessity of raising the common conception of the importance of the work of the Agricultural Teacher to a par with that of the Classical and Mathematical teachers, I should like to emphasise the necessity of raising the dignity of another aspect of the subject, the dignity of labour. In any School where it is not thought proper for the Agricultural Teacher to tuck up his dhootie or shorts, gird himself with a gamcha, and descend with his students into the uninviting mud of the rice-field, there to labour alongside his boys, the teaching of Agriculture might as well cease forthwith. In my own School, I have found it of great value to get alongside my boys in their everyday tasks, hoeing and weeding, planting and reaping, in all the activities of that great man, the farmer.

In Agriculture as in all other occupations of Mankind, it is the man with initiative and imagination who makes a success of the life into which he finds himself thrown. Therefore it is the duty of those in charge of Agricultural Schools to see that there is none of that parrot-like learning which is so common in the Schools of this country. In planning the individual plots, for instance, though the teacher must be prepared with suggestions, it is his primary duty to draw from the boys their ideas as to what is to be grown, it is not the slightest use saying to the boys, "Now the hot-season is coming, you must plant one row of ladies fingers, one row of notu shak, one row of brinjals—and so on." Nor is it any use teaching boys that they must plant certain things at certain seasons, as it were by the calendar, too much attention is paid to the "Panji" as it is by the ryot. By inculcating the habit of thinking ahead, such seasons as the present abnormally dry one, while ruinous from the financial point of view, can be turned into real opportunities for teaching.

The inculcation of initiative in the thinking through of situations as they arise, and the planning of unusual cropping was well demonstrated this year on our farm, when a catch-crop of wheat was planted on the land prepared for

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rice, when the rain proved too scanty for the transplanting of rice. Here imagination plays a big part too, none of our boys knew that seed wheat had no husk, as is the case with seed paddy, and the atta shop as a source of seed occurred to very few boys. But as a result of being set to think about these problems, the boys themselves suggested the irrigation of a small plot of land, and the planting of an early crop of jhinga and ucchay. This seems in the way of being a success. Questioning of the boys in regard of the planting of certain other plots, yielded the suggestion that more sugarcane be planted, and this is being done.

In planning the farm, attention must be paid to local demand. Here in Kaurapukur we are near enough to the Calcutta market to make it our chief sales area, and the planting of sugarcane fits in well with this aspect of the problem too. Other crops which we have found profitable are papaya, banana (for curry), potol, and fodder grasses. I believe that much money could be saved by ensiling the fodder grasses, and selling one's straw for thatching. Similarly paddy may be better fed to ducks, and the ducks sold fat. In districts like ours where thieving is very difficult to check, mangoes are often more profitable when picked unripe and made into chutney. Jute, made into string and sold as such, is more profitable than raw jute, and affords an off-season occupation for your labourer. These are just a few examples of the use of the imagination.

With most of the Schools, the area is a small one, and this is the case with the Bengal ryot also. The natural inference is that intensive farming must be resorted to in spite of its greater requirements in capital and labour. The growing of finer and heavier yielding paddy must be encouraged, good seeds must be used, avoid the snare of the 'cheap seed' nursery. Use plenty of artificial manures, they amply repay their cost. Grow the minimum of non-paying crops, such as rice and jute, and substitute other crops for them, water growing sugarcane can be a good substitute if the soil is not too salt.

Look forward to the time when your Agricultural teaching will be well established. Plant trees which will give you a yield in a few years, such as custard apple, and trees which will give you shade in the future, such as mangoe. Have your Teacher learn mangoe grafting, you can make a useful income from good grafts. Have nothing around your school which is not of the

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best grade. Cut out trees which do no yield, if superstition prevents you, as it did with us in the cutting of coconut palms and the planting of bamboos, defy it, for it is for you to lead the way to the rooting out of such things as spoil agriculture in your land.

The good agricultural school should always be one step ahead of the local folk. Keep your land ploughed, thus will you save your manures, for weeds use them up as fast as profitable plants. Remember it is the early and the late crops of vegetables that pay. Get your cabbage seed, for example, well ahead of others, and plant in relays so as to get an early crop whatever happens. Be ruthless with any failures, grow good stuff or nothing at all—you are teaching !

Do not forget your subsidiary employments. Very few farmers give all their time to the land. You will need to arrange for someone to instruct in the local occupations. We, for example, teach fish-trap-making, mat making, carpentry, house building with mud, thatching, tin roof work and many other things including weaving. Thus will you avoid the charge so often laid against schools, that they unfit a boy for village occupations. With the same end in view, have as many classes as possible in the open, so that a boy does not lose his hardiness. Do not let rain and sun interfere with your field work, when the neighbouring farmers are working make your boys work too.

It is my opinion that the ends of such education can be far better met by boarding schools than by day schools. Any one of our day-boys gives us more trouble than any five boarders put together. I believe it is better for the village to have one selected boy in a boarding school than ten in a day school. In these schools, control is everything, and a control that finishes at four o'clock is pretty useless. Further, the advantages of a boarding school in the formation of the type of character the country needs in its villages, is almost incalculable, and is quite obvious. Ability without character is dangerous, and we do not want to produce dangerous men. Boarding Schools can teach co-operation, and that is one of the most valuable lessons in India to-day. Build the course into the life of the boy, and you will get a man who does not want to go to the cities.

The Agricultural School should be the centre of the life of the community, and if it is, you may be sure it is a success.

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Finally, do not start if you are not prepared to spend at least Rs. 100/- a year for five years, but rather content yourself with a garden scheme, and wait for better times to start a farm. But the Scheme is worth while, and I am thankful to Government for the chance they have given us to try it.

AGRICULTURAL EDUCATION IN SCHOOLS.

By MR. H. E. DEWEY, (Director of Ushagram).

The greatest problem before the educationalist in India to-day, is the problem of the education of the rural masses, who are composed to a large degree of the agriculturists or tillers of the soil. India is first and foremost a nation of farmers, and even in Bengal where Industry has made vast strides, farming remains our chief industry. Unless some adequate attention be given to the training of this part of our population, there cannot be any material improvement in the economic and social welfare of the nation at large, for industry must live on the mass, and provide for the mass, and the poverty of the mass will be found inflicting itself on all branches of society with its activity. Whether we care to believe it or not, we are faced to-day with the fact that more and more people are being forced back on the land for the earning of a livelihood. A large percentage of those city and urban dwellers whose chief interest is industry, find opportunity to turn to their fields for a part of their support, while in the cities themselves to-day will be found a large part of the population looking to the work of others in their forsaken village communities on land left to them through long lines of family history.

The tasks before the modern leader in education, therefore, that leader who is brave enough to face the greatest need of a great and growing population is the tasks of making agricultural education practical to the mass, and challenging to the mass as well. It involves more than the mere spreading of training in the care and use of the soil and its products. It involves the creation of a course of training which will produce leaders in the rural community who will by their very presence on the land, attract young India to a like effort, thereby leading young India where it is most needed to-day after its school days are finished, the backward village communities. Life is more than making a living, it is the living itself, and an education which will be most useful to the farmer of to-morrow, must be one which will make the agriculturist practical and co-operative in his work, and at the same time lift him to such a cultural standard that he will be able to hold his own among leaders in other activities.

What then therefore shall the course of training consist of which will raise agricultural activity to the point where it will be appreciated as an occupation in which any educated man or woman might well glory. The answer may best be found, I believe, in turning our eyes to other great agricultural nations, and we find in Canada and the United States to-day that in spite of crippling depression which has reached into the heart of the nations, that the agriculturists as a class are looked upon as the most fortunate of the larger groups which make up those nations. There is the trained hand in agriculture and we admit that at least a half of the training of the future tillers of the soil, or the producers of our clothing and shelter raw materials, would well be spent in practical work in the field, or in the smaller field, the modern laboratory where soils are tested, and plant developments are followed through. It is the other half of the educational process, however, on which we must depend for the promotion of those ideals, and that knowledge, which will raise the agriculturist to the point where he may demand the respect of his larger community, and the country at large. Farming as an occupation, is more than the plowing, the cultivation, the harvesting of the world's food supply. Successful farming involves the living of each 24 hours on the farm, and in the village and beyond the village community in such lines of activity that the place and value of the farm will be appreciated, and its welfare promoted. In Canada and the United States to-day it is stated that more college men and women are looking forward to the return to the farm than to any other one great industrial activity, and this is true because of the appreciation that greatest of occupations is held in those nations.

The student of agriculture in the foreign Agricultural college, and in those of thousands of high schools which to-day are attempting to fit youth to take its place of leadership on the farm, and in the larger professional community, uses his courses as a means of becoming a world as well as a farming citizen. His study is builded around the production and the distribution of those raw products which go to make up most of the world's food, clothing, and shelter. History is as important when it is studied with the idea of gaining a knowledge of the migration of people in search of fertile broad plains for their future homes, as it is as a study of wars. Agriculture is not alone the world's primary industry, it stands at the centre of the greatest movements of history, and the class-room

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which teaches history from the standpoint of the agriculturist in training, will give its students a proper perspective in life.

Turning to other common courses found in every school, we are confronted with the teaching method in the case of reading and writing and here again the teacher of agriculture should place farming, and the life of the farmer at the centre of the course. Again it may be said that it is as important to read of the ways the world is fed, clothed and sheltered, as it is to understand the political aspirations which lead to wars, and wholesale destruction of humanity. And the student who writes his essays about the humble farmer will find himself with new interests in the mass of the people. He who would interest himself in the welfare of the agriculturist in his student days, cannot but offer his services later on in an effort to better the human surroundings of a needy

Arithmetic, and geometry, fitted to the use of the future farmer, will become living realities as they are made to concern the buying, the selling, the transportation of produce, or the laying out of farm plots and the measurement thereof. The agriculturist of to-morrow needs to face the possibilities and probabilities of to-morrow's farming relationships, and can be made to do this by considering in his class-room work, not a meaningless mass of figures, but well worked out problems which will make practical the class-room work.

One might go on to geography and other courses, and in each indicate the necessity of making the class-room help to an understanding of the problems which to-morrow will confront the boy as he takes his place in later life. Can we not say in relation to all the class-room activity, that when we are training the farmer, we should seek to make him farm minded, but at the same time cover the material in such a way that he will see the largeness of the tasks, and realise the necessity for living not only as a farmer, but as a citizen interested in all the life about him.

In so far as actual plants and soils are studied in the class-room, their examination should be closely associated with the practical work of the field, and very probably most of this work can best be carried out in the field itself where the examination of different types of roots, leaves, branches, will lend to an understanding of many of the underlying possibilities open to the farmer.

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Questions will immediately arise as to what use the humble farmer in India can make of some of the knowledge I have spoken of here. His land holdings are small, his profits are to be small, and why should his education be of such nature that he will be lifted above his tasks. You will probably go so far as to say that such courses will drive the student farther from the farm. But we as educationalists are meeting here to find a way out for Bengal in its education. It is the privilege as well as the duty of education to fit men and women to live their whole life, to reform and to transform through the inculcation of idealism as well as ideas, and a knowledge of the present activity of agricultural peoples in forward looking and progressive nations, may make possible the co-operation among rural masses in this land which would stop the continued exploitation by those who through superior knowledge, are holding the farming classes down.

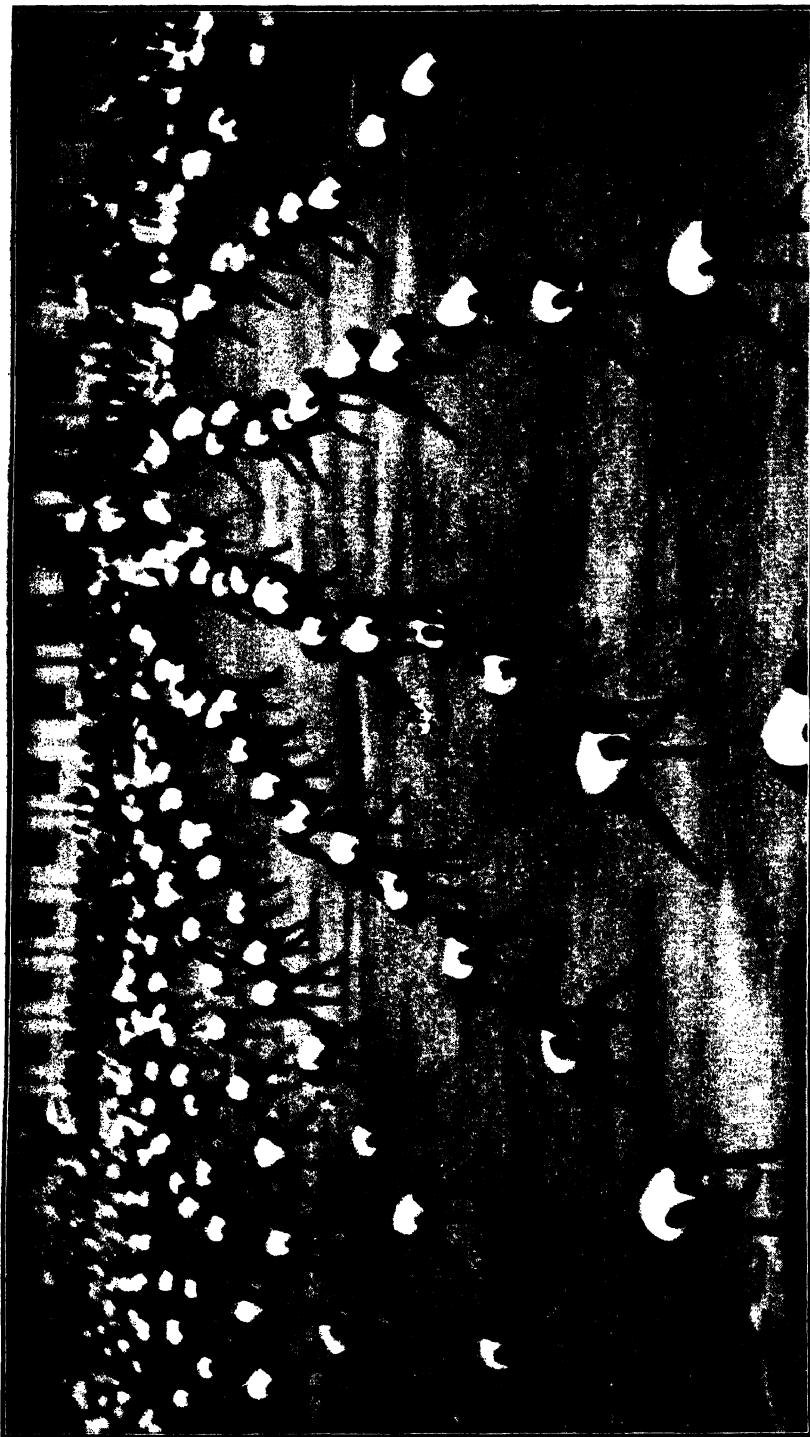
In my agricultural courses, I was taught that I was helping in the greatest task before the economic world, the task of helping to feed, clothe and shelter the world. The farm was at the centre of our thought it is true, but more important than the farm were the farmers, and their improvement was outlined as our task. You who are gathered here to-day are to make or break the respect of this great province in its attitude toward education. You have made the Degrees and Diplomas of your several parts of the Universities, something worth while, and to-day we find thousands of boys and girls seeking those degrees and the power that goes with them. Your duty, it seems to me, if you would serve your nation well, is for you to make room in your respect for the forgotten man. It is my privilege to step now and again into your rural school rooms, and I have found the boys and girls of educated parentage there while of times there is no sign of that group which is far more needy than country lad or maid who to-morrow will be a part of our great production mass.

Japan has pointed the way toward improved methods of agriculture as has the great West. But any study of foreign methods will leave much of misunderstanding unless there be coupled with this education, the cultural, the international mind and heart.

I commend unto the attention of all of you, the farmer, those backward classes, backward because we have forgotten them, or because their lot seems to us a hopeless one. But only as they rise, can we remain in places of respected

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position. Education has the power to save the nation. That power is in your hands. Bring into your schedule of work and study a respected place for the rural agriculturist, and to-morrow will see dawn about us a better and brighter world.



Physical Demonstrations by the Boy Students at the Bengal Education Week, 1936.

Photos by the Courtesy of the *Anrita Bazar Patrika*.

*Synopsis of a lantern lecture on Physical Education by James Buchanan, M.A.,
Physical Director, Bengal, delivered on 3rd February, 1936.*

Mr. Buchanan showed first a series of slides illustrating the varieties of physical activities organised and taught in the schools, colleges and youth clubs of Sweden, Denmark, Britain, Germany, and Czecho Slovakia, and in doing so he drew the attention of the audience to the wide scope of these activities, the excellent results achieved, and the immense number of men, women and youths who devoted much of their leisure time to the development of healthy vigorous physique.

The second series of slides illustrated what was being done in Bengal to-day for the development of physical education. The Physical Director referred to the following schemes—

- (a) The Government Physical Training Centre, where University graduates were trained for one year and qualified as physical instructors and games masters for colleges and high schools;
- (b) Training courses conducted annually for teachers from Middle Schools, Junior Madrasahs, and Guru Training Schools;
- (c) Training courses for women teachers conducted annually by the Physical Directress of the Young Women's Christian Association, which was subsidised by Government.
- (d) Financial assistance provided by Government for the establishment and improvement of District Inter-School Sports Associations and voluntary clubs or sports associations in all parts of the province;
- (e) Grants to girls' schools for the purchase of apparatus for physical training and games.
- (f) Grants to the Boy Scout Association and the Bratachari Society.

In this manner, he said, an attempt was being made to develop adequate schemes of physical education in educational institutions of all kinds, as well as amongst young men and women who were unconnected with such institutions and would normally have few opportunities for outdoor recreation.

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The main obstacle to more rapid development, he said, was, however, the apathy or lack of interest of those who, in their younger days, had not had similar training or opportunities, and who failed to appreciate the need for regular and systematic physical training during the growing period and for recreational opportunities in later life.

He concluded with an appeal to the educationists present to recognise the extreme importance of giving physical education its proper place as one of the subjects of the school and college curriculum, so that something might be done to prevent many of the physical defects now so prevalent amongst students, and to raise the existing low standard of health and physical efficiency of the youth of Bengal.

THE USE OF INTELLIGENCE TESTS.

By P. C. MAHALANOBIS.

DEFECTS OF THE ORTHODOX EXAMINATION.

One of the most significant movements in education in recent years has been the growing feeling of discontent with the orthodox system of conducting examinations. A good deal of critical work has been already done which shows that the existing system is inefficient and unreliable in many ways.

That examinations differ widely in their efficiency will I think be readily admitted. It will be useful to consider briefly how we can judge the efficiency of examinations. There are two important criteria for this purpose, namely, (1) Validity and (2) Reliability.

Validity depends on the accuracy with which a test measures that which it is purported to measure. In other words, an examination must do what it is intended to do. This is almost a truism, and yet it deserves attention.

If we want, for example, to select efficient shorthand-typists it is no use asking the candidates to solve examples in calculus. The examination should obviously be designed in such a way as to sort out the candidates in order of their proficiency in shorthand-typing. In the same way, if we wish to test the ability in writing English the examination should be such as to give us information regarding the proficiency of the candidates in this particular subject. In other words, the examination will be valid when it gives correct information regarding the particular ability under review. In India, unfortunately, the orthodox examinations, on the basis of which selections of candidates in many vocations are made, have often very little reference to actual vocational requirements.

Secondly, the results of the examination must be reliable. This means that if the same examination is repeated, it should give the same results. A test may however be reliable but not valid. For example, suppose we ask a large number of College students to do a paper in elementary arithmetic. If the examination is repeated it is practically certain that the results will be about the same. The examination is therefore reliable. But suppose we wish to

select a cricket team on the basis of this examination. It is almost certain that we shall fail miserably. The test, although reliable, is of course not valid for this purpose.

In order that a test may be reliable it is of course necessary that two or more examiners marking the same paper should give approximately the same marks. If one examiner gives a high mark and another examiner a low mark to the same paper the results cannot be considered reliable. Very recently this particular question has been investigated by a committee of international standing in London. The first report—"An Examination of Examinations" by Sir Philip Hartog and Dr. E. C. Rhodes—has attracted wide attention. They have pointed out that the widest variations occurred in marking the same paper by different examiners. Results of similar experiments conducted in other parts of the world are in general agreement and show that the orthodox examination is highly unreliable. Candidates who secure pass or even first class marks with one examiner may fail when their papers are marked by some other examiner, or sometimes by even the same examiner on a different occasion. Clearly a test of this kind cannot inspire confidence and makes the question of passing the examination largely a matter of chance.

STANDARDIZED TESTS.

The purpose of modern standardised tests is to devise examinations which will be both valid and reliable. It will be convenient at this stage to divide such tests into broad groups according to the objects in view :—

- (1) Tests of general intelligence.
- (2) Tests of special aptitudes such as manual skill, literary or artistic aptitudes. Personality traits may also be included here for the present.
- (3) Achievement tests of knowledge or proficiency or technical skill in particular subjects acquired during the process of training.

As time is short I shall confine my remarks to tests of intelligence. I may mention here that it is now generally agreed that intelligence (or whatever is being measured by these tests) is largely independent of training and may be considered to be an inborn trait.

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Sir Francis Galton assisted by Karl Pearson attempted to devise appropriate tests for measuring certain mental traits more than half a century ago. Some early work was also done by Catell, Gilbert and others in the United States, Binet and Henri in France, Ebbinghaus in Germany, and Guiccardi and Ferrari in Italy before the beginning of the twentieth century.

The modern movement may be regarded to have started almost exactly a generation ago with the publication of the first scale of intelligence by Binet in 1905, and this pioneer period in intelligence testing may be considered to have ended with the publication of the final revision of the Binet scale in 1911 shortly before his death. The work was taken up by a number of competent psychologists like Goddard, Terman, Thorndike and others in America, by Bobertag and others in Germany, and by De Sanctis, Saffiotti and his followers in Italy. While in England, Spearman had already started his work on the Two-factor theory of general intelligence which was later developed with great vigour by his followers.

RECENT DEVELOPMENT.

At first the tests were given individually to each subject. This naturally consumed a large amount of time. Gradually however the tests began to be given to large groups of subjects at the same time. This led to the development of group tests which gave a new turn to the movement. Surveys on a scale were made possible which could not have been dreamt of in the era of individual testing. A great impetus was given by the use of group tests in the American army during the War in 1917-18. The Army Alpha test, for example, was administered to more than one million unselected recruits. The next few years which saw an amazing development in group testing may be characterised as the boom period in mental testing.

The subject of vocational guidance and industrial psychology gained peculiar importance in the post-war period of economic distress and gave additional impetus to the testing movement. It received official recognition in various countries of the world. In India, for example, it was discussed by the Central Advisory Board of Education in October 1921, and experiments with the Binet-Simon scale and its later revisions were started in certain provinces. A comprehensive report on "Psychological Tests of Mental Abilities" was

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prepared by Dr. A. S. Woodburne and was published by the University of Madras in 1924.

The following extracts from the presidential address of Dr. C. W. Kimmins to the Education Section of the British Association in 1929 gives a good idea of the importance of intelligence tests in education :—

“The most important movement in education since 1905, the date of the last meeting of the British Association in South Africa, is the coming of the intelligence test and its incorporation as an essential element in the general scheme of education. We are as yet very far from having reached the ideal form of intelligence test, but sufficient has already been done to show by actual experience in a variety of ways, the remarkable value of individual and group tests.”

“In the Begabten Schulen in Germany, where, in the final selection for admission, the results are based almost entirely on the intelligence quotients of the candidates, one cannot fail to be greatly impressed by the ease with which these children without any undue pressure can successfully cover as much ground in one year as normal children would require at least two years to accomplish. In the days to come we shall give far more attention to the super-normal child than we do at present”.

“A very promising direction in which intelligence tests may render invaluable assistance is to be found in vocational guidance. Indeed it is not unreasonable to hope that in days to come, every boy (and girl) on leaving school will have reliable information as to the kind of work in which he can most effectively use the ability he possesses, with pleasure and satisfaction to himself and to his employer. In this case the hopeless situation involved in ‘the square peg in the round hole’ will tend to disappear.”

Since then the position of standard tests have been steadily improving, and they now form an integral part of the educational system in all the advanced countries of the world.

A GROUP TEST OF INTELLIGENCE IN BENGALI.

I shall now tell you briefly the results of certain experiments made in the Statistical Laboratory of the Presidency College. A group test of intelligence

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through the medium of the Bengali language was devised several years ago and was administered to over 1200 school children in Bengal. Detailed analysis of these records have been published in *Sankhyā : The Indian Journal of Statistics*, Vols. 1 and 2.

The test material consisted of two parts each comprising six questions which were printed in large type in the form of a booklet. The questions were framed in such a way that the candidates could answer them either by underlining certain words or by marking with crosses the right answers. One hour was allotted for the administration of the test. Making an allowance of ten minutes for the students to come in and take their seats and other preliminaries, this left a period of about 50 minutes to finish the exercise. This was found quite ample for practically all the candidates. Marking of the answer books was made completely objective. A standard list of correct replies was prepared and one mark was allotted for each correct answer. A reply was either right or wrong so that fractions were ruled out. The maximum number of marks for Part I was 23, and for Part II was 37 or 60 for the two parts combined.

Records of caste, age, class etc. of each candidate and also of the marks obtained during the preceding half-yearly and annual examinations of the school were also obtained.

RELIABILITY OF THE TEST.

The first point investigated was the reliability of the test. It was found that there was very high correlation (of the order + 0.88) between the results in the two parts of the test. Students obtaining high (or low) marks in Part I on the whole obtained high (or low) marks in Part II and vice versa. This shows that the test was reliable, and both parts of the examination measured traits which have a great deal (of the order of 85 per cent) in common.

The object of the present test was to measure the general intelligence as distinguished from knowledge of particular subjects. An attempt was therefore made to eliminate as far as practicable questions requiring mere knowledge of facts. The same test was therefore administered to 1212 school pupils in Bengal whose ages varied from about 8 years to over 22 years. It was therefore necessary to investigate the age variations of the scores. It was found that the marks obtained by the candidates increased in a systematic manner with increas-

ing age. This shows that there was a definite growth in intelligence with growth in age. This result is in agreement with the general experience all over the world.

It must be remembered that this increase in marks with age is only true of average marks for each age-group, and not for individual marks. Thus we found that the average mark of all the 9-year old pupils was 12.6; for the 10-year group it was 17.0; for 11 years 21.2; for 12 years 26.7; 13 years 31.4; 14 years 35.8; and so on. But there were wide differences in individual marks. Many pupils of lower age obtained much higher marks than the average. Consider for example a 10-year old boy who has secured 36 marks which is just about the same as the average mark scored by pupils of age 14 years. The 10-year old boy is clearly about four years in advance of other boys of his own age. It was in this sense that Binet used the phrase 'mental age'. We may speak of the boy having a mental age of 14 years and a chronological age of 10 years. The percentage ratio of the mental age to the chronological age is 140 which is called the Intelligence Quotient (or I.Q.) of the boy.

It will be noticed that the way in which the I.Q. is defined makes it to a great extent (but not completely) independent of the age. We may therefore use the I.Q. as a convenient measure of intelligence. The average I.Q. is 100, and I.Q.'s greater than 100 represent the more intelligent and I.Q.'s lower than 100 the less intelligent subjects. The I.Q.'s were calculated separately for each part of the examination, and it was found that the two sets of I.Q.'s were in close agreement. This also showed that the test as a whole was thoroughly reliable. (There are alternative measures of intelligence other than the I.Q. which possess additional advantages. Some of these have also been investigated in our Laboratory, but this is a technical question which is of interest only to the specialists.)

VALIDITY OF THE TEST.

Having satisfied ourselves as to the reliability of the test, we may pass on to the question of validity. As already mentioned our object is to test the general intelligence. Now in case general intelligence is a factor of importance in achieving success in school examinations, we expect some agreement between the intelligence marks or I.Q.'s and the marks obtained in the school

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examinations. This question was investigated in detail. We found that there was a large measure of correspondence between the two sets of marks (the co-efficient of correlation being of the order of + 0.6), that is, pupils having higher I.Q.'s on the whole did better in the school examinations. This again was satisfactory.

One result of considerable interest may be mentioned here. We found that the growth in scores continued up to the age of about $17\frac{1}{2}$ years after which there was a significant drop. School pupils of age higher than 17 or 18 years were clearly less intelligent than the average. The explanation is obvious. At the time the test was administered the minimum age for appearing at the Matriculation examination of the Calcutta University was 16. Pupils of 17 or 18 years of age who had not passed the Matriculation examination and still remained in schools were clearly more or less backward than the average students. Naturally they scored lower marks in the intelligence test. This shows that intelligence is at least one of the factors in achieving success in the Matriculation examination of the Calcutta University.

SOME INTERESTING RESULTS.

The same fact was corroborated independently. The test was administered to about 400 students in the Intermediate classes of a Calcutta College. It was found that those boys who had passed the Matriculation examination in the first division secured about 53 marks in the intelligence test. The second division boys on the other hand scored on an average about 41 marks, and the third division boys only about 37 marks. The differences were all significant.

We found many other interesting results. Among which I shall mention only one. We found that the students in a girls' school included in our survey had I.Q.'s considerably above 100. This showed that the school girls were distinctly more intelligent than the school boys. I do not think there is any question of girls being intrinsically more intelligent. (In fact the general experience is that there is no appreciable difference in intelligence on the average between the two sexes). The real explanation in the present case must be that unless a girl is definitely intelligent the parents do not consider it worth while to allow her to read in a school. In other words, while even dull boys get the

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chance of a school education, it is only the brighter girls who get the same opportunity.

The chief results of the above experiments may now be summarized. We found that the group test of intelligence could be conducted without difficulty through the medium of the Bengali language. The reliability of the test is high. The validity of the test is established by the fact that its results show satisfactory correspondence with success in school examinations and also in the Matriculation examination. Raw scores increased with age up to about $17\frac{1}{2}$ years, but suitable measures of intelligence such as the I.Q.'s were to a large extent independent of age. The I.Q.'s were also to a great extent independent of the previous education received by the candidates. This showed that mere information or knowledge acquired in the process of training was not of importance in achieving success in this test. The test is obviously measuring some thing other than knowledge or information, some thing which is inborn and which is of importance in scholastic success. (We are calling this something as general intelligence, but we need not quarrel over the name).

THE DISTRIBUTION OF INTELLIGENCE.

We found that there were very large individual differences, some of the subjects having large values and others low values of I.Q.'s. Most of the pupils were however of mediocre or average intelligence. The number of individuals diminishes rapidly as we move away from the average on either side. That is, the number of very intelligent or very dull subjects become progressively rare. It is worth noting that the distribution is approximately symmetrical, and there are just as many individuals at any level above the average as there are at the corresponding level below it.

It is gratifying to note that the above results are in general agreement with the findings of workers in other parts of the world. One other fact established by the researches of competent workers may be mentioned at this stage. We have reason to believe that intelligence depends on heredity, and the resemblance between parents and children in intelligence is very likely just as close as resemblance in physical appearance.

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THE USES OF INTELLIGENCE TESTS.

I shall now indicate some of the practical purposes for which intelligence tests may be profitably used. It is generally agreed that intelligence is probably the most important single factor in scholastic success. The more intelligent students not only achieve greater success, but they cover the routine courses far more quickly. The first and most important use of the intelligence test is, therefore, to give reliable information about the calibre of the candidates. These tests are being increasingly used to classify the pupils into different groups, highly gifted, superior, average, inferior, down to the mentally deficient.

With the help of this information it becomes possible to form homogeneous classes with pupils of about the same ability, and also to provide, where possible, special classes for the superior or the backward children. The educational advantages in such a plan are obvious. In more advanced countries intelligence tests are being extensively used for the distribution of scholarships, and in connexion with examinations for entrance into universities and training colleges.

Intelligence tests are also indispensable in giving individual attention to the pupils. A boy may be backward in studies because he is lacking in intelligence, or because he is shirking work, or has other difficulties. Accurate information of his intelligence rating is invaluable in finding a suitable remedy and in removing maladjustments.

Intelligence tests are equally indispensable in vocational guidance and selection. It has been found indeed that occupations can be classified roughly in accordance with the degree of intelligence required for satisfactory performance of the duties. Many business firms and government departments in western countries are now using intelligence tests as part of the procedure in selecting new employees.

Finally, the intelligent test has its special applications in research. For example, in controlled experiments in education (comparing different methods of teaching, use of different text-books, different systems of class organization, etc.), the intelligence test is the only tool with which it is possible to form sample groups and control groups of approximately the same ability. The intelligence test is also being increasingly used in comparative psychology in

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studying the distribution of intelligence among various groups of people, among different socio-economic classes, and in the study of human heredity.

THE NEED OF INTELLIGENCE TESTS IN BENGAL.

The need for the introduction of the intelligence test in Bengal is urgent. The results obtained in the Statistical Laboratory show that a group test of intelligence in Bengali has immense possibilities. Although these preliminary results were based on the test scores of over 1600 students, the survey must be conducted on a much larger scale.

The first stages of the work will be laborious, and will require the active co-operation of the psychologist, the educationist, and the statistician. It will be desirable to construct not one test, but a series of tests suitable for different age groups. Each test must then be tried out in the field, its reliability and validity investigated with adequate statistical tools. For the final standardization large samples are absolutely essential. This point can not be emphasized too much. It is useless, and worse than useless, to work with 50 or 60 or even 500 or 600 subjects. At least 10,000 pupils must be tested before reasonably steady and reliable results can be obtained. Help of the Education Department is indispensable. But this will not be sufficient. All teachers interested in the subject must offer their active co-operation.

Once the tests are properly standardized their use will be extremely simple, and will not require any knowledge of statistical mathematics. Group tests can be administered by any ordinary school teacher. The test will be given in the form of a printed booklet with plain directions. The examiner will merely distribute the books, see that there is no copying, and control the time. The marking will be entirely objective, and as standard forms will be provided it will be possible to convert the raw marks into I.Q.'s (or other suitable measures of intelligence) with the help of tables.

A carefully constructed and properly standardized intelligence test in the medium of the Bengali language will place a powerful tool in the hands of the teacher and the school administrator. It will be useful for every day teaching in the class-room, for the formation of homogeneous classes, for diagnosis of special weaknesses, for giving individual attention to pupils, for regulating class promotions and the distribution of scholarships, for vocational

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guidance and selection, and for conducting controlled experiments in education.

To secure the maximum advantage from intelligence tests it will be necessary however to organize a parallel development of the use of standardized tests of achievement in particular subjects and of tests of special aptitudes. Separate tests will have to be devised for each grade or class in each subject ; Bengali, English and other languages, arithmetic, algebra, geometry, history, geography, elementary science etc ; and alternative forms will be required for repeat examinations.

The work to be done is vast. Other countries are going ahead and we in Bengal can not afford to lose any more time. I am glad this Education Week has given me the opportunity to place this problem before you. I trust the subject will be taken up in earnest by all persons seriously interested in education in Bengal.

MEASUREMENT IN EDUCATION INTELLIGENCE AND ACHIEVEMENT TESTS.

By J. M. SEN.

Assistant Director of Public Instruction, Bengal.

In all problems of education two things are of fundamental importance; one is *the child* who is to be educated and the other *the environment* in which he grows up. But both are variables; no one can fully predict what a child is going to be, nor is it impossible to change the environment to a certain extent. Education is therefore *a function of two real variables*. No mathematician can however lay down any precise formula governing the relationship of these two variables.

Common sense says that all human beings are capable of education. History of man from the earliest stage goes to strengthen this belief. There is however great difference of opinion regarding the nature of the child as raw material on which the educator may work. Some persons consider the child as a little angel who comes to this world from heaven which is his home; while others regard him as full of original sin. Practical knowledge about children does not fully substantiate the views of any of the theorists. The child is neither angel nor devil; nor is he merely a lump of clay to be moulded by the teacher into any pattern he likes.

Every human being comes into this world with certain possibilities and limitations. These must be regarded as things given to the child. The child begins life as a sort of field of operations for two forces that sometimes work in harmony, but frequently oppose each other; these forces are known as heredity and environment. Heredity is generally accepted as an ordinary principle of life. "Certain more or less doubtful laws of heredity are enunciated, are generally accepted, and are acted upon in practical life in connection with medicine and insurance in the case of human beings, and in connection with breeding and grafting in the case of animals and plants". For the teacher the problem of heredity is an enquiry into the question of the inheritance of acquired

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characteristics viz., "Does the child inherit from his parents qualities that they have acquired for themselves during their life time? In education the teachers are liable to the fallacy of apparent transmission. Characteristics acquired by the parents may appear among the children not because they are transmitted but because they are again acquired by children. Mr. Bernard Shaw, who does not believe in the hereditary transmission of characteristics, writes in *Man and Superman*—“The bubble of heredity has been pricked. The certainty that acquirements are negligible as elements in practical heredity has demolished the hopes of educationists as well as the terrors of the degeneracy mongers; and we now know that there is no hereditary governing class any more than a hereditary hooliganism”.

The demonstration of the fallacy of the doctrine of the transmission of acquired characteristics cannot be regarded as a calamity for education. No doubt it shatters the hope that the teacher may produce an ever improving set of human beings by accumulated improvements in succeeding generations. But it also brings the joy of knowing that from however bad a home a child comes—if only he comes early enough—he brings with him no handicap from his parents' acquired traits. This is well illustrated in the evidence of the authorities of the Bernado Homes, the Salvation Army, and in the records of the municipal and other authorities in Western countries who have reclaimed a large number of children of depraved and criminal parents. Confirmation is to be found in the careful records which the Glasgow Municipal Authorities have kept of some 630 cases of children removed from evil environment when still very young, and sent to the country to be brought up in ordinary families at the expense of the Municipality. Of the six hundred and thirty children whose career has been kept under close observation for years, only twenty-three have gone wrong. Yet these children came from the worst possible stock. At the Psychological Section of the Indian Science Congress held in Bombay in January 1926, I also gave instances of five slum boys between the ages of eight and ten who when removed to a better environment and given some schooling in the new environment in Calcutta, showed a remarkable increase in their I.Q.'s (intelligence quotients) within a comparatively short period. It is perfectly true that the children of parents who had received some education themselves can be taught more easily than the children of those who

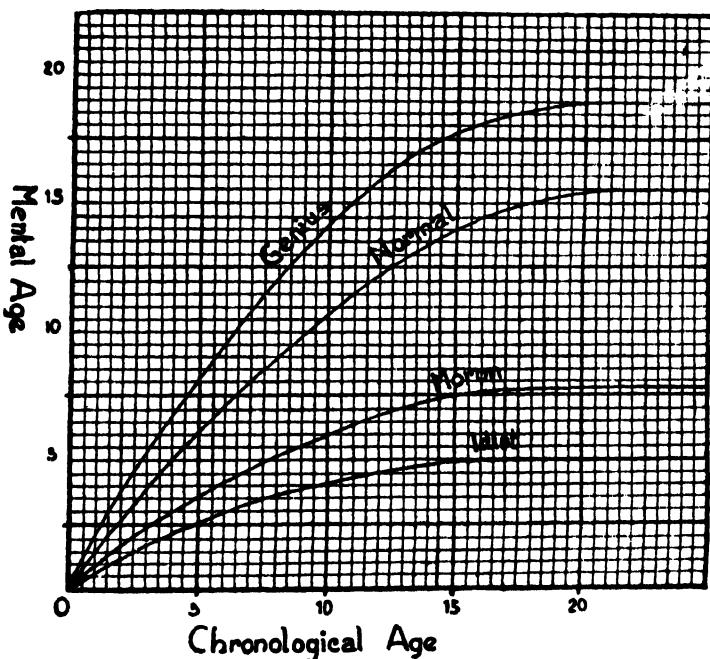
had not the opportunity of receiving any education. But all the same the former group will have to be educated in almost the same way as the latter group. Hence it can be asserted that *educability can be transmitted but the results of education cannot be transmitted*. From the point of view of practical teacher the influence of the environment is the most important factor. The pupil's qualities must be taken as they are given. But in the matter of environment the teacher can certainly manipulate it in such a way as to produce a definite effect upon the pupil.

Many educational psychologists attempted to define the meaning of the word "intelligence". There were almost as many definitions as writers; and of these definitions no two fully conveyed the same meaning. The reason for this is that no one knows precisely what intelligence is? No one even knows the exact nature of any one of its separate faculties or functions. Apart from the formal definitions expounded in recent years, it has been described as "understanding" or "the capacity to understand", "intellect", "mental acuteness" and so on. Ebbinghaus had called it "intellectual ability" and has said that it consists in the "elaboration of a whole into its worth and meaning by means of many-sided combination, correlation and completion of numerous kindred associations". Spearman looked upon intelligence as a general function, the outward manifestation of a high correlation between each of the separate functions, while Thorndike has held that it is a multitude of functions. But perhaps it would be best to give the term "intelligence" a comprehensive meaning by saying that it is the general capacity which consciously adjusts the individual's thinking to new requirements—general mental adaptability to new problems and new conditions of life.

If this view be accepted it will be realised that the statement that the intelligence of an individual increases (though differently in different individuals) from birth to sixteen or eighteen years of age and thereafter remains constant is of great importance in regard to his education. For most part of this time he is at school and the teacher can help him increasing not merely the pupil's knowledge but his native intelligence as well. It is therefore of utmost importance that the conditions of the school atmosphere should be such that it can help in increasing the Intelligence Quotient of each and every individual. Those who are found to be mentally retarded should be sent to special schools

for mentally defectives where a special atmosphere for their education will have to be created. The classification of pupils according to mental age therefore becomes a condition precedent to good teaching in class rooms.

The curve given below gives the growth of intelligence of pupils of various types—



The above curve also illustrates why money is wasted in secondary schools for the education of children who are not fit to proceed to High Schools. Some of the children are uneducable in ordinary schools. With the growth of education in India this problem is assuming a position of great importance in the administration of education by provincial governments and local bodies.

Some of the Intelligence Tests are used to test (i) the ability to carry out commands, (ii) the ability to work out reasoning problems in arithmetic, (iii) the ability to select the best reason for a statement, (iv) the ability to detect likeness or differences, (v) the ability to reorganise disarranged sentences and to indicate

whether a sentence is true or false, (vi) the ability to complete series of numbers, (vii) the ability to select by analogy, and (viii) the range of general information. There are also tests covering the following subjects (a) information, (b) similarities, (c) memory, (d) absurdities, (e) comparisons, (f) relationships, (g) symmetries, (h) designs, (i) counting and (j) directions. Some tests like the Sen & Dasgupta Tests (based on the Otis Intelligence Scale) are designed to measure (1) ability to follow directions, (2) ability to copy designs, (3) ability to compare pictures as to likeness or differences, (4) ability to complete pictures, (5) ability to accompany symbols with certain digits, and (6) ability to compare words as to sameness or oppositeness in meaning.

With the introduction of compulsory elementary education in the different provinces of India the problem of classification of scholars fit to proceed for secondary education is assuming a gigantic proportion on account of millions of children coming within the scope of educational laws. A quick process of classification is possible by application of educational tests. The purpose of the testing programme is fourfold, viz. (a) to determine as nearly as possible the native capacity for learning possessed by each pupil (b) to determine each pupil's present educational achievement or attainment, (c) to effect better grade placement for those pupils not properly graded, (d) to report the test results in such a way that the teacher would be able to make the greatest possible use of them. The tests which ought to be devised for the purpose may vary in different provinces to suit local conditions but certain non-language tests can also be prepared which can be applied generally in any part of India. In the preparation of the tests the following criteria must be borne in mind :—
 (i) Are the tests the best ones to yield the desired measure? (ii) Do the tests yield highly reliable and valid results? (iii) Are the tests scorable by untrained persons under supervision? (iv) Are satisfactory norms or standards available? (v) Are the tests scientifically standardised in all respects? The task is gigantic and is not an easy one. Help of the Government of India, of the Provincial Governments, and of the Indian States which want to introduce compulsory education, is absolutely necessary to make the scheme a success. It may however be stated that if the tests can be applied at different stages in the career of each pupil then waste in many directions can be prevented.

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So far as college education is concerned it is necessary to devise some accomplishment tests. Any adequate evaluation of the effectiveness of instruction in a particular college course or department requires the use of methods of measuring the results of instruction which give valid evidence of the degree to which students are reaching each of the important objectives of the course or of the department. Usually college instructors base their estimates of success upon subjective judgments of the student's ability as demonstrated in term papers and in traditional examinations. But in developing a method for measuring the student's attainment in each of the important objectives of college work it is essential that all important objectives should be included. Those objectives which are accepted by a given college must be considered in any adequate programme for measuring the effectiveness of the institution. These are :—

Type A :

Acquisition of information—which includes recalling specific facts, terminology, and statements of general principles.

Type B :

Reasoning or utilising scientific method—which includes induction, testing hypotheses, and deduction.

Type C :

Locating relevant data—which includes a knowledge of sources of useable data and skill in getting information from appropriate sources.

Type D :

Skill characteristic of particular subjects—which includes laboratory skill in the sciences, mathematical skill, and the like.

Type E :

Applying standards to technical performances—which includes the knowledge of appropriate standards, ability to evaluate the relative importance of several standards which apply, and skill in applying these standards.

Type F :

Making reports—which includes the necessary skill in reporting projects in engineering, or reporting experiments in science and the like.

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Type G :

Consistency in applying a point of view—which is deemed important in courses in philosophy.

Type H :

Interest in important social problems—which includes interest in reading about and investigating problems.

Type I :

Enjoyment in wholesome recreational activities—which includes enjoyment of literature, music and art.

Type J :

Character—which is all inclusive and may well involve many specific factors.

While science as the pursuit of power is becoming increasingly triumphant, science as pursuit of truth is being killed by a scepticism which the skill of the man of science has generated. As long as science was a search for truth—a truth independent of human interest or purpose—the scientist might ignore the human factor. But if science is the pursuit of power, it must be power to some end. This end must be clearly determined by reference to human well-being. Educational research, which builds upon the assumptions, the laws and the techniques of the physical sciences, should sense in this interpretation a challenge to a critical consideration of its own value and practices. For a challenge exists, and reconstruction in the philosophy and programme of research is sadly needed. What are the implications of this reconstruction in science? The careful selection of problems in terms of their significance for human well-being and happiness is of basic importance in research. In the main, the research worker in education has been without a vision—a slave of conventional education. He has improved and polished its practices, but he has not challenged its fundamental assumptions. Reading is taught better: abstract numbers are mastered more rapidly and permanently; examinations are more detailed and reliable, but still factual. In many respects he is like a piece worker in a big factory, doing his bit in the service of some larger plan that he does not question or evaluate. If he would meet the challenge, he must become a philosopher and choose which values he will serve. He must also

give up his sense of finality and authority. The educational scientist is sometimes found to be conceited and arrogant, he lacks the intellectual humility of the true scientist. But the foundation of his conceit has been destroyed by the research of the physicist; the laws of science are conventional and convenient arrangements, never more than approximation, they are generalisations, invaluable as guides to thinking. Through adherence to the old interpretation, science which had been the major instrument for liberating the intelligence of the race, became the agency in the hands of scientists in education for making the exercise of intelligence by lesser individuals unnecessary. It is a false conception of the function of science to determine for instance, the most common interests of children in nature or in reading and then to prescribe a curriculum for all children, which means ten thousand unique individuals upon that basis. Such data are invaluable tools for the teacher, but as patterns they are abortive. The research worker in the field of education must select his problems by their human significance. He must have a standard of values. From modern philosophy and science come these suggestions. Educational research should be engaged primarily with problems that concern the realisation of a more dynamic organism, a democratic way of life, and a liberated but disciplined intelligence. If we examine the conventional school in whose service the educational psychologist has willingly and industriously enlisted, what does it seek as its goal? Is it organised to instil interests and drives? Does it increase dynamic? Does it make thinkers? Does it foster the inquiring mind? Does it practise its pupils in the methods of child research? The answer is an almost universal negative.

I have already mentioned that a change in environmental conditions can accelerate the growth of intelligence of a pupil prior to his attaining the age of sixteen. *The secret of evolution lies, in short, with environment.* In the environment, in that in which things live and move and have their being, is found the secret of their being, and especially of their becoming. And what is that in which things live and move and have their being? It is Nature, the World, the Cosmos and something more, some One more, an Infinite Intelligence. Everything that lives, lives in virtue of its correspondences with this environment. *Evolution is not to unfold from within, it is to infold from without.* Growth is no more extension from a root but a taking possession of,

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or a being possessed by, an ever widening environment, a continuous process of assimilation of the seen or unseen, a ceaseless redistribution of energies flowing into the evolving organism from the Universe around it. The supreme factor in all development is environment. If a tree is to be judged in terms of the immediate environment of its roots, it is a clay tree; but if it is to be judged by stem, leaves and fruit, it is not a clay tree. If the moral of the social organism is to be judged in terms of the higher influences which enter into the making of its stem, leaves and fruit, it is not a material organism. Everything that lives, and every part of everything that lives, enters into relation with different parts of the environment and with different things in the environment. A child does not grow by spontaneous unfoldings. The process is fed from without. The body assimilates food, the mind assimilates books, the moral nature draws upon affection, the religious tendencies nourish the higher being with ideals. Time brings not only more things, but new things. It is therefore clear that the main function of the teacher is to create an atmosphere in which the mind of the child can grow unimpeded in various directions and in which the general intelligence, or the central intellective factor "G" as it is called by Professor Spearman, can grow freely and thereby help in producing a better type of man.

In the early days of intelligence testing, eminent psycholigists committed themselves to extravagant programmes. One of these was the notion of "homogeneous grouping." How a psychologist, of all people, and an educational psychologist at that, could use such a phrase must remain a mystery. Like the "purple cow" of the nonsense rhyme, I have never seen a homogeneous group ; I never hope to see one. However you group children, scientifically or unscientifically, by guess or by test, by intuition or by rule, the one sure thing is that the pupils will remain individually unique and different. Lately the much sounder expression, "ability grouping", has gained acceptance. But ability has been again too narrowly conceived in terms of intelligence as measured by tests of 'school achievement' or of some combination of these two. Now it is hardly to be questioned that ability as thus defined is a primary factor in a child's adjustment to the schools, not only of to-day but as they will be when progressive educators shall have remodelled them. In practice, however, grave administrative difficulties will have to be encountered.

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Trait differences, that is the difference from ability to ability within the single individual, have proved almost as great and far more troublesome than the differences between individuals. In despair, many educators have concluded that by having groups of one pupil each can we really adjust to abilities. There is no need here to speak of either the administrative or the pedagogical objections to such a completely individualized programme. It is clearly the counsel of despair and so far as I am aware no one has actually proposed it for our schools. Certainly no school practises it. Practical teachers and educationists reached the conclusion that the individual must become the real unit of teaching, though for economic reasons, the class could not be comfortably abolished. At the present moment we all believe in ability grouping but we do nothing about it or at least too little. We continue to group children according to the most mechanical and arbitrary of all possible bases, that of age from birth. That for many children, perhaps, for most, this works well enough is, of course, the answer of sloth. We dare not be satisfied till we have secured for every child that combination of associations with his fellows which is most fruitful for him in the light of all his abilities, all his attitudes, all his traits of personality. This is not easy. It requires detailed knowledge of not only the child to be grouped, but the other children with whom he is to be associated. Equally clearly, it calls for a flexibility of administrative arrangements and a flexibility and imagination in teaching which have nowhere yet been attained. Until we have more clearly seen and more honestly striven for these ends, the term 'ability grouping' may serve with others to remind us of our supreme duty to the individual child.

General intelligence tests, memory tests, reasoning tests, ability tests, vocation tests (i.e. tests for determining skill for a particular vocation in life) in schools and colleges do not cover all types of pupils. There are patient plodders in all walks of life and it is worthwhile finding them out while they are in educational institutions. By means of a series of tests, Dr. E. Webb has determined that there is a second central factor in life known as "the persistence of motives" (denoted by "W"). Even this cannot explain all cases. Mr. Maxwell Garnett has brought to light a third independent factor viz., "originality" or "cleverness" (denoted by "C"). High values of "C" characterise men of

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genius and first rate artists, poets and scientists. My own teacher, Sir T. Percy Nunn of the University of London, regards "that the general nature of a person's endowment may be registered by a single point in a tri-dimensional record of graph, the co-ordinates of the point being the values of the three independent factors "G", "W" and "C" described by Spearman, Webb and Maxwell Garnett". These fascinating researches enable us to determine "the promise and potency of the individual so far as these depend on his endowment". They however prove that there cannot by any clash of interests of individual pupils in class room and outside. All three factors "G", "W" and "C" cannot be identical even in two cases, not to speak of three or more cases. The school teachers' task is more exacting and more difficult than that of the college teachers. It has already been mentioned that general intelligence of a person remains practically constant after his sixteen years of age. The college teacher can do nothing to help a boy in increasing his intelligence namely "G". He can help him in his acquisition of knowledge and to a certain extent help him in increasing the values of "W" and "C" mentioned above. On the other hand the school teacher can do a lot in helping a boy to increase his all three factors viz., "G", "W" and "C" while he is at school and while knowledge is imparted to him. Hence it is necessary to develop the potentialities of a pupil during his school age by creating for him an atmosphere of study and character congenial to all and not inimical to the best interests of the society as a whole.

This is the task which the school teachers of our country will have to face under the stress and strain of the new political, social, economic and religious consciousness which has engulfed us all. The task is gigantic but I feel sure that the school teachers will rise equal to the task, if governments undertake to train them for the purpose of discharging their obligations to the future citizens of the country. The problem has been kept hanging for a long time. It cannot wait any longer for a solution. It must be taken up at once by all those who have the best interests of their country at heart.

INTELLIGENCE AND ACHIEVEMENT TESTS

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It was a real sensation in America when the results of a simple test in general intelligence to which between one to two millions of the recruits during the Great War were subjected were made known to the country at large. The idea was to sort out those who were intelligent enough to be non-commissioned officers as also those who were fit for ordinary military duties, in which again brains could not be overlooked. As Dean Inge pointed out, the result was so humiliating for the admirers of democracy that the tests which were sensible and honestly applied, were received with great indignation.

The average adult male citizen of the Great Republic, it appeared, was mentally a little boy at a preparatory school between eleven and thirteen years old. The shock would have been less if it had been realised that the tests equally prove that the human brain is normally at its best at the age of about sixteen. As we grow older, we gain experience, knowledge and caution : but in sheer innate cleverness and originality, we do not, so these tests tell us, make much progress after fifteen.

A word about the history of these tests would not be out of place here for, after all, Intelligence Testing is one of the startling developments of modern psychology. French psychology has always had a practical flair and it was at Paris that Intelligence Testing was given a definite shape. About the beginning of this century, the school authorities in Paris, desiring to know whether the backwardness of many children in school resulted from the presence of normal children in institutions for mentally defectives or the school teachers in ordinary schools being plagued by more than their share of ineducable children. They found the right man in Alfred Binet, a leading psychologist of the day and his researches opened up a whole new field of human knowledge. Thus, curiously enough, the first facts about intelligence emerged from a study of those who had very little of it—mental defectives. In 1905 he brought out his Tentative scale of individual Tests and within a few years

afterwards, he refined and improved upon these tests with a collaborator and brought out the now famous Binet-Simon Tests. In devising these tests, Binet's plan was to leave school knowledge on one side and look for information and skill picked up by the child from his elders and playmates in the ordinary experience of life. Further Binet wisely decided not to seek for any single Test for so broad a thing as intelligence but to give the child plenty of chances to demonstrate what he had learned and what he could do. These tests were graded in difficulty from the level of 3 year old to that of 12 year old (revised and brought up to 18 by the American Psychologist Lewis Terman) and his procedure turned out to be one of sampling a person's abilities in all directions by means of ingenious and carefully graded brief tests of comprehension, memory, judgment, adaptability to new situations, ability to detect absurdities, to resist foolish suggestions, cleverness and coup d'ocil.

For example (1) A three year Test—a child must name 3 out of 5 familiar objects that are shewn him. (2) A six year Test—Finding omissions in pictures of faces, from which one nose or one eye etc is left out. Four such pictures are shown and three correct answers are required to pass the Test. (3) An eight year Test—he is asked to state if there is anything absurd in such statements :—Yesterday the police found the body of a girl cut into 18 pieces. They believe she killed herself. (4) A twelve year Test—Vocabulary Test—rough definitions showing the child's understanding of forty words out of a standard list of one hundred.

This was Binet's 'metrical scale of intelligence' which would measure mental capacity as with a ruler.

The question may be raised "Why such arbitrary standards—three out of five here, 3 out of 4 there and forty out of a 100 the next time? The answer is that these tests were standardized by Binet by actual trial on thousands of children and so standardized that the average child of a given age can just barely pass the Tests of that age.

Binet next introduced the conception of mental age which has been the foundation of all later work. The average normal child of 8 years, let us say, has a mental age of 8 years, and any individual who does just as well as this is said to have this mental age, no matter what his chronological age may be. If a child's mental age is the same as his chronological age, he is

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just average, neither bright nor dull. If his mental age is much above his chronological age, he is bright, if much below, dull. He is mentally so many years advanced or retarded.

But a better index of a child's intellectual promise than simply saying he was so many years mentally advanced or retarded was required and Terman hit upon the notion of the Intelligence Quotient or I.Q.—a figure obtained by dividing a child's mental age by his actual age and multiplied by 100 to avoid decimals. This a girl of 8 with a mental age of 10 would thus have an $I.Q. \frac{10}{8}$ i.e. 125 i.e. she has picked up knowledge and skill 25 per cent. faster than the average boy or girl of 8. The I.Q. remains, as is well known, fairly constant as the child grows older, and this represents his rate of mental growth. Thus once a bright child, always a bright child and it is tragically true that a dull child like Caliban remains a born devil 'on whose nature nurture can never stick.' Heredity claims its toll of victims which modern civilization has not yet learnt to save or reclaim. It is well known too, as measured by these I.Q.'s, that about 60 per cent. of the children and adults have an I.Q. between 90 and 110 and 20 per cent. are below 90 and 20 per cent. above 110. For convenience, those with I.Q.'s under 70 are labelled 'feeble-minded', above 110 superior, above 120 very superior and above 140 near genius. Since the Binet Tests were individual tests and took a long time in administrating, the necessity for group testing was felt. American psychologists faced with the necessity of finding suitable individuals as N.C.O.'s during the Great War, prepared and standardized adult tests (Alpha and Meta Tests) which were adopted in the receiving camps. They proved very useful in detecting those whose intelligence was too low to enable them to learn the duties of soldiers and those who from high intelligence, could be trained as officers. Many Group Tests like the Northumberland Tests, Chelsea Tests, National Institute Group Tests, National Intelligence Tests, Otis and Terman's Tests etc.—are now in use and among them some performance Tests. The individual and group Tests cover all stages of a man's growth to-day from infancy to manhood. There has been also a corresponding development in standardized scholastic Tests in reading, spelling, arithmetic, English composition, and Grammar, drawing,

handwriting etc. so that it can easily be found out whether a particular pupil of a particular age or grade is above or below the norm with regard to these school subjects.

The tests were received with great enthusiasm first in Germany and America; in England, thanks to Professor Burt who gave them an English garb, the prejudice against them is gradually breaking down and they are a regular feature in Entrance examinations in many schools to-day.

It must be remembered, however, there was no real theory behind Binet's work. Like a mining Engineer wishing to get an estimate of the richness of a mineral deposit, Binet took, as it were, a series of borings at a multitude of points and compounded an average. It was left to the more brilliant and original mind of Prof. Spearman to discover the true nature of intelligence and find for his researches mathematical corroboration. By trying his carefully devised tests on thousands of children and adults, he came to the conclusion that intelligence was neither a host of little independent business—a bundle of separate faculties; it was rather a big single combine entering into co-operation in various regions with local businesses. A person in whom this central power is well developed will therefore tend to do well in everything like the Admirable Chrichton—since its influence extends to every kind of performance and the unfortunate men who has little of it will be equally a dunce at Arithmetic, writing, reading, and the strategy of a game of marbles. The verdict of months of calculation was unquestionably in favour of the hypothesis that our abilities are constructed on the plan of a single large general ability which Spearman called G and which we may prefer to call "Intelligence" working in association with a large number of special abilities—which he called S's—each operating in a restricted field, mathematical, musical, artistic, mechanical etc. This is the Two factor theory, since every performance is determined partly by the amount of G and partly by the amount of S possessed by the individual concerned.

Thus from a mathematical study of correlations between our general intellectual ability and our special abilities the knowledge has come to us that success in mathematics and languages is a good indication of high intelligence. The tradition of selecting men for leading posts in the Civil Service by an academic examination in classics and mathematics is thus after all not foolish.

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And the relatively small part played by G in musical and drawing ability and handwriting would explain the excellence of mental defectives in drawing and the wretched performance of many intelligent people in music or handwriting.

In this country we have adopted the Tests to Indian conditions and they are now used in many institutions as admission tests, for administering scholarships, for grading children in the same class etc. Tests have been devised at both the Training Colleges in Bengal and other centres in India. In Bengal at the Training Colleges, we have made an extensive use of the Tests for admission purposes. But if the truth must be told, these tests that we have devised have not properly been standardized—that needs a body of psychologists with ample leisure to try them out on large numbers of children and men, constantly to revise and refine them before we could say here is a reliable body of tests by which the native intelligence of our children and adults could be accurately tested. It is the duty of the Government and the University to establish a bureau of Psychologists who would be entrusted with this great piece of work. The London County Council was the first municipal organisation to engage the services of Professor Cyril Burt who has by his work made Intelligence Testing almost a normal feature of school administration in England. But it is perhaps counsel of perfection for the Corporation of Calcutta. It should, however, be remembered this is not a provincial matter alone—the matter is so fundamental that the Central Advisory Board at Delhi and Simla ought to take it up seriously and set up a Central Organization which would devise tests that would be suitable for the whole of India. The relative intelligence of the different communities in India, the measures that may be taken to tone down such differences in so far as this is possible, the sifting of the gifted children and giving them a suitable education, giving our children vocational guidance by means of vocational tests etc. offers a captivating field that lies almost unexplored.

Certain specific problems arise out of the administration of these tests to children and adults. Firstly the problem of classification—the tests have proved there are lots of children in each school who have been located in grades below their mental level and intellectual ability. The inevitable result is mental laziness (for teaching in class is generally catering for the average child) and wandering and our class system is equally disastrous with regard to the

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backward child. What is going to be done? The only way is—not too quick promotions or stagnation in the same class year after year but the classification of these types of children in separate classes and sections and administering education (as is being done in many schools in America) according to methods suitable to each type or class. Public attention is focussing itself more and more on the education of the gifted child as the waste of talent or genius is a far greater loss to nations than loss of forests or mines.

The second specific problem that arises is one of occupational misfits. To determine the average intelligence of people in various occupations is of more than theoretical interest—it is going to make possible a science of vocational guidance and enable us to direct children leaving school to the callings for which they are best fitted. Naturally there is a big difference in I.Q. between the brainy man and the dull plodder in each occupation but the latter is not necessarily a misfit for strength of character can make a little intelligence go a long way. By careful investigations occupational intelligence arrange have been discovered and a recent investigation in England gave the following interesting results—a medical man with an intelligence equal to the average for shop assistants, an unemployed hairdresser with the brain of a good professional man, a well-to-do business man with an intelligence equal to the average for van boys (I.Q. 84) and a merchant service seaman with the mental capacity found only among distinguished University Professors. Evidently some of these missed their real vocations in life and are square pegs in round holes.

The next and last problem I wish to discuss in relation to intelligence and Achievement Tests is the problem of unreliability of examinations of the old type especially when they are conducted by an external authority. C. W. Valentine's book "The Unreliability of Examinations" and the recent Report of the International Commission on Examinations has made this amply clear and the question has already been discussed two days ago by Dr. Jenkins in his illuminating lecture on examinations. It is now realised that a test, whether admission or otherwise, consisting of a purely academic examination in contents of knowledge of various subjects like English, Mathematics, Science, History etc. is not a very reliable guide as to a student's intellectual ability and inherent capacity. It has also been found from a follow-up study of the careers of

students who were admitted to a secondary career by an admission test more or less of the old type as implemented by some Intelligence Testing that the combination yielded far more satisfactory results. To make our tests more reliable and non-variable as also to plumb inherent capacity, intelligence testing should be made a normal feature of school and college administration in India. In the secondary schools in Northumberland, from 1928 onwards, Intelligence Test results have been given equal weight with the admission by results in English and Arithmetic—in fact it was determined by a careful study ranging over years that the Intelligence Test was the most effective part of the examination and the Arithmetic Test the least effective part, and that the best result was obtained by a combination of Arithmetic, English and Intelligence marks.

A most interesting use of 'intelligence' and 'achievement' tests in conjunction is in operation in certain areas in Kent. Comparison is regularly made between the I.Q. and the educational ratio (as determined by a number of standardized achievement tests in reading, spelling, arithmetic etc.) and is entered on the record card, so that one can see at a glance the extent to which a child is making use of his native talents. It thus enables teachers to measure a child's retardation or advancement in relation to his inborn capacity.

It is indeed a happy augury for the future that teachers in Bengal are getting more and more interested in Intelligence Testing which I am sure will be of great help to them in their most responsible task.

ରସାୟନେର ଅନୁନିହିତ ରହଣ

ଡକ୍ଟର ଶୁଭମାନ କୁମାର-ଏ-ଖୁଦ

ଶୁଦ୍ଧ ଅତିତେ ରସାୟନେର ଚର୍ଚା ଆରଣ୍ଡ ହଇଯାଇଲି ବ୍ୟାଧିର ପ୍ରତିକାର କରେ । ରସାୟନିକ ଆଜିଓ ତାହାର ସେଇ କର୍ତ୍ତବ୍ୟ ବିଶ୍ୱାସ ହେଯେନ ନାହିଁ । ତାହାଦିଗେର ବିରାଟ ପରିଅମ୍ରେ ଫଳେ ମାନବେର କତ ଛଃଥେର ଅବସାନ ହଇଯାଇଁ । ତବେ ଅଧିନା ରସାୟନ-ସେବୀରା କେବଳମାତ୍ର ଆବେ ହାୟାଂ ବା ସଞ୍ଜୀବନୀ ଶୁଦ୍ଧାର ସଙ୍କାନେ ବ୍ୟାପ୍ତ ନାହିଁ ; ତାହାଦିଗେର ଗବେଷଣା ବହୁମୁଖୀ ପଥେ ଚାଲିତ ହଇଯାଇଁ, ଏବଂ ଫଳେ ମାନବେର ଜ୍ଞାନେର ସୀମାରେଖା ଅମେହି ଅଗ୍ରସର ହଇଯା ଚଲିଯାଇଁ । ବିଜ୍ଞାନେର ଏହି କ୍ରମବର୍ଜନଶୀଳ ଶାଖାର ସାମାଜିକ ପରିଚୟ ଲଈଯା ଆମି ଆପନାଦିଗେର ସମ୍ମୁଖୀନ ହଇଯାଇଁ । ଏହି ଚେଷ୍ଟାର ଫଳେ ସଦି ଆପନାଦିଗକେ ହୁଇ ଏକଟୀ ନୂତନ ସଂବାଦ ଦିତେ ପାରି ତାହା ହିଲେଇ ଆମାର ଏ ଚେଷ୍ଟା ସାର୍ଥକ ହଇଯାଇଁ ଜାନିବ ।

ପଦାର୍ଥ କି ଏହି ସାମାଜିକ କଥାଟୀ ସମ୍ପୂର୍ଣ୍ଣରାପେ ଉପଲବ୍ଧି କରିତେ ରସାୟନିକ ସର୍ଥେଷ୍ଟ ଗବେଷଣା କରିଯାଇଲେନ । ଆପନାରା ହୟତୋ ମନେ କରିବେନ ଏହି ସାମାଜିକ ବିଷୟେର ଜ୍ଞାନ ଗବେଷଣାର କି ପ୍ରୋଜନ ହିତେ ପାରେ ? କିନ୍ତୁ ପ୍ରୋଜନ ସତ୍ୟାଇ ଛିଲ । ପ୍ରଥମ ଦର୍ଶନେ ସକଳ ପଦାର୍ଥଙ୍କ ହୟତୋ ଏକଙ୍ଗ ମନେ ହିବେ, କିନ୍ତୁ ଏକଟୁ ଭାବିଲେଇ ବୁଝିତେ ପାରିବେନ ସେ ଯାବତୀୟ ପଦାର୍ଥକେ ଅଧାନତଃ ହୁଇ ଭାଗେ ବିଭିନ୍ନ କରା ଯାଇ, ତାହାଦିଗେର ଏକଟୀ ମୂଳ ଏବଂ ଅପରାଟୀ ସୌଗିକ ପଦାର୍ଥ । ହୟତୋ କଥାଟୀ ଖୁବ ପରିଷକାରକାପେ ବଲା ହିଲା ନା । ମୂଳ ପଦାର୍ଥଙ୍କ ସୌଗିକ ପଦାର୍ଥର ଅନୁଭିତି, କାରଣ ମୂଳ ପଦାର୍ଥ ହିତେଇ ଯାବତୀୟ ସୌଗିକ ପଦାର୍ଥ ପ୍ରକ୍ରିୟାର ଅନୁଭବର ଏବଂ ପ୍ରତ୍ୟେକଟୀ ସୌଗିକ ପଦାର୍ଥ ହିତେଇ କତକଣ୍ଠିଲି ମୂଳ ପଦାର୍ଥ ପ୍ରାଣ ହୋଇଯା ଯାଇ । ଆମରା ସ୍ଵର୍ଗ, ରୌପ୍ୟ, ପାରଦ ଓ ତାତ୍ର ପ୍ରଭୃତି ଧାତୁକେ ପ୍ରଥମ ଶ୍ରେଣୀ ଏବଂ ତୁଁତେ, ସୋହାଗା, ଚିନି ଏବଂ ଲବଣ ଇତ୍ୟାଦି ଜ୍ଵଯକେ ଦ୍ଵିତୀୟ ଶ୍ରେଣୀର ଅନୁଭୂତି କରିଯା ଥାକି । ମୂଳ ଏବଂ ସୌଗିକ ପଦାର୍ଥର ମଧ୍ୟେ କି ସମ୍ବନ୍ଧ ବୁଝିତେ ହିଲେ ଆମାଦିଗକେ ଅଗୁ ଏବଂ ପରମାଗୁର କଥା ଜାନିତେ ହିବେ । ମାନବ ଅଗୁ ଏବଂ ପରମାଗୁର ପରିକଳନା କରିତେ ଗିଯା ହିଲ କରିଲ ସେ, ବିଭିନ୍ନ ମୂଳ ପଦାର୍ଥରେ

পরমাণু কোনও বিশেষ নিরন্মের অধীনে বিশিষ্টভাবে সম্প্রসিত হইয়া যুগ পদার্থের সৃজন করে। যূল পদার্থের সূক্ষ্মতম অবিভাজ্য কণাকেই আমি পরমাণু নামে অভিহিত করিয়াছি এবং অগু অর্থে যৌগিক পদার্থের অবিভাজ্য সূক্ষ্মতম খণ্ড বা যূল পদার্থের হই বা ততোধিক পরমাণুর সমষ্টি বুঝিয়াছি। অর্থাৎ ইংরাজি atomকে পরমাণু এবং moleculeকে অগু নামে অভিহিত করিয়াছি। মানব আঙ্গিও অতিশয় শক্তিশালী অগুবীক্ষণ যন্ত্র সাহায্যেও সূক্ষ্মতম কণাণুলির সাক্ষাত্কার করিতে পারে নাই, তবে তাহাদের এই পরিকল্পনা যে নিছক কল্পনাই নহে তাহার প্রমাণ অবশ্য নানাভাবে প্রত্যক্ষ করিয়াছে। আপনারাও জানেন যে, লবণের একটা অপেক্ষাকৃত বৃহৎ খণ্ডকে ভাঙিয়া সূক্ষ্ম চূর্ণে পরিণত করা যায়। কিন্তু এই সূক্ষ্ম টুকরাটাকে কতদুর পর্যন্ত ভাগ করা সম্ভবপর? উহাকে ভাঙিতে আরম্ভ করিলে এমন এক সময় আসিবে যখন আর যন্ত্র সাহায্যে উহাকে ভাগ করা চলিবে না, এইবার উহাকে অন্ন পরিমাণ জলের মধ্যে গুলিয়া দিলে দেখিবেন যে, জলের প্রতিটা বিলুতেই লবণের আস্থাদ পাওয়া যায়, কিন্তু জলের পরিমাণ অধিক হইলে আর তখন আমাদিগের সীমাবদ্ধ আস্থাদন শক্তি উহার উপস্থিতি বুঝিতে পারিবে না। আমরা সচরাচর যে জল পান করি উহার মধ্যেও লবণ বর্তমান, কিন্তু আমাদিগের জিহ্বা দ্বারা সে লবণের ছিতি বুঝিতে পারি না। তবে রোগের নাইট্রেটের (silver nitrate) শ্যায় রাসায়নিক পদার্থ সহযোগে ইহার অবস্থান প্রমাণিত হইতে পারে।

পুনরায় দেখুন, ফ্লুরেসিন নামীয় একটি চমৎকার রং জৈব রাসায়নিক (organic chemist) প্রস্তুত করিয়াছেন। ইহা অন্ন পরিমাণ লইয়া অন্ন কষ্টিক সোডা সহযোগে উহার বহুতর খণ্ড জলে গুলিলেও রংটা প্রত্যক্ষ করিতে পারা যায়।

এই দ্রুটী পরীক্ষা দ্বারা আমরা বুঝিলাম যে, সাধারণতঃ যাহাকে আমরা সূক্ষ্মতম খণ্ড গুলিয়া অভিহিত করি তাহাকেও সূক্ষ্মতর খণ্ডে বিভক্ত করা সম্ভবপর। অন্তর্ধায় এই শেষোক্ত রংটার সাক্ষাৎ এত অধিক জলের মধ্যে পাওয়া সম্ভবপর হইত না। অর্থাৎ একটা পদার্থের অতি সূক্ষ্ম একটা খণ্ডকে এত অধিক পরিমাণ জলের মধ্যে গুলিয়া দেওয়ায় ইহাই বুঝা যায় যে, পদার্থের অগুগুলি প্রথমে একত্র সংঘৰ্ষেশিত ছিল পরে উহারা জলের মধ্যে

ছড়াইয়া পড়িয়াছে। এই সকল পরীক্ষা পরমাণুর পরিকল্পনায় যথেষ্ট সাহায্য করিয়াছে সম্মেহ নাই।

অণু এবং পরমাণুর এই পরিকল্পনা অধুনা পুরাতন হইয়া গিয়াছে। বর্তমান ঘূগ্সে ইহা পরিবর্তিত হইয়া যাহা দ্বারা দ্বারা দ্বারা হইয়াছে তাহাতে প্রত্যেক পদার্থকেই বিশিষ্ট ধনাত্মক (positive) তত্ত্ব শক্তি সম্পত্তি সুজ্ঞতর কণাকূপে কল্পনা করা হইয়াছে এবং এই সুজ্ঞ প্রোটন কণাগুলির চতুর্স্পার্শে ইলেক্ট্রন নামে পরিচিত বিয়োগান্ত বিদ্যুৎ-কণার বিশিষ্ট সংখ্যা ভৌমবেগে নিয়ন্ত: ঘূরিতেছে। এই পরিকল্পনার ফলে ইলেক্ট্রন কণার সংখ্যার পরিবর্তন দ্বারা একটা মূল পদার্থকে অন্য মূল পদার্থে পরিবর্তিত করা সম্ভবপর হইয়াছে। পুরাকালের পরমাণুর এইরূপ পরিবর্তন সম্ভব ছিল না। পরমাণুর নৃতন পরিকল্পনায় সহায়তা করিয়াছে রেডিয়াম প্রভৃতি স্বতঃ উজ্জ্বল ধাতুবর্গ। এতদিন ধরিয়া প্রাচ্য এবং পাশ্চাত্যের মনীষিবর্গ অল-কিমিয়ার সাধনায় যে কৌশ্ল সম্পাদন করিতে চাহিয়াছিলেন এখন মনে হয় মানবের সে আশা হয়তো একদিন সত্যই ফলবত্তী হইবে।

আমি কিন্তু বর্তমানে আপনাদিগকে পুরাতন অণু এবং পরমাণু ঘটিত করকণ্ডলি কথা বিশেষভাবে বলিতে চেষ্টা করিব। পদার্থের পরিবর্তন নিয়ন্ত ঘটিতেছে, কিন্তু পদার্থ বিনাশ প্রাণ্ত হয় না। Conservation of massএর কথা অতিশয় সত্য; তাই আমরা দেখিতে পাই যে, পদার্থ কূপ পরিবর্তন করিলেও উহা নিরস্তর বর্তমান রহিয়াছে। আপনারা সকলেই জানেন যে, সমূজের জল বাস্পীভূত হইয়া মেঘকূপে আকাশে বিচরণ করে এবং পরে পুনরায় জলের আকারে স্ফুর্প্ত সিক্ত করে। কিন্তু আমরা যে বায়ু সমূজে ডুবিয়া আছি ইহাতেও কি ঐরূপ পরিবর্তন সম্ভবপর? বাতাস যে জমিয়া তরল হইতে পারে একথা তামরা কৃজন ভাবিয়াছি? কিন্তু সত্যই এ পরিবর্তন সংসাধিত হইয়াছে। আজ সে রহস্যের কথাও একটু না বলিয়া পারিলাম না। জুল-টমসনের অভাবনীয় আবিকারের ফলে মানব চিন্তা করিল যে, যদি কোনও বায়ুবীয় পদার্থকে একটা বক্ষপাত্রে পুরিয়া চাপ দিয়া পুনরায় সেই চাপ সরাইবার ফলে ঐ বাষ্প বহিরাগমন কালে শীতল হইতে ধাকে তাহা হইলে প্রত্যেক বাষ্পকেই, ক্রমাবঝে চাপ দিয়া চাপ সরাইলেই, যথেষ্ট শীতল করা সম্ভবপর।

মোটর টায়ার, বাইসাইকেলের টায়ার অথবা ফুটবল ব্লাডারের মধ্যে চাপের সাহায্যে বাতাস পূর্ণ করিয়া পরে মুখ খুলিলেই যখন বাতাস নির্গত হয় দেখা যায়, সে বাতাস অপেক্ষাকৃত শীতল। অতএব এই অধিকতর চাপে বাতাসকে কোনও নল মধ্যে পূরিয়া চাপ সরাইলেই নির্গমনশীল বাতাস অধিকতর শীতল হইতে থাকিবে এবং এই উপায় বার বার অবলম্বন করিলে বাতাসকে যথেষ্ট পরিমাণে শীতল করা সম্ভবপর এবং অবশ্যে উহা জমিয়া তরল হইতেও পারে। এই যন্ত্রের যুগে যান্ত্রিকের কৌশল সাহায্যে বাতাস সত্যই তরলীভূত হইয়া পাও মধ্যে স্থান গ্রহণ করিয়াছে। ইহার শৈত্য এত অধিক যে, যে কোনও পদার্থ উহার মধ্যে ডুবান যায় তাহাই জমিয়া কঠিন রূপ ধারণ করে। যখন ফুটিতে থাকে তাহার তাপ মাত্রা হয় 100° , বরফ 0° তাপে গলিতে থাকে; বরফ এবং চূর্ণ অবগ একত্র মিশাইলে তাপ মাত্রা কমিয়া— 12° তে নামিয়া আইসে এবং তরল বায়ুর (অয়জান) তাপ মাত্রা— 183° । তরল বায়ু জল অপেক্ষা লঘু এবং জলের সহিত মিশ্রিত হয় না, কিন্তু অত্যধিক শীতল বলিয়া জলকে জমাইয়া ফেলে। এই সাতিশয় শৈত্যের সংস্পর্শে আসিয়া গদ্দক উহার স্বাভাবিক পীতাত বর্ণ হারাইয়া শুভ্র বর্ণের চূর্ণে পরিণত হয় এবং লোহিত পারদায়জ (mercuric oxide) বর্ণ পরিবর্তন করিয়া পীতবর্ণ ধারণ করে। পারদ একটা রূপালী রংএর তরল ধাতু সহজে উহা জমে না, কিন্তু তরল বায়ুর স্পর্শে উহাও সীসা, রাঁ, রৌপ্য প্রভৃতির শায় কঠিনরূপ পরিগ্রহ করে। গ্লিসারিন, সুরাসার প্রভৃতি তরল পদার্থও এই অত্যধিক শৈত্যের ফলে জমিয়া দানাদার কঠিন পদার্থে পরিবর্তিত হয়।

আপনারা শুনিয়াছেন অতি পুরাকালে জীব জন্তুর দেহাবশেষ মৃত্তিকার মধ্যে প্রোথিত থাকিয়া ক্রমে প্রস্তরীভূত হইয়া গিয়াছে—ইহাকেই ভূতত্ত্ববিদ fossilisation নামে অভিহিত করিয়াছেন। এই তরল বায়ুর সাহায্যে আপনারা, এক খণ্ড মাংস, ক্ষুজ একটী মৎস্য, ফুলকপির একটা টুকরা অথবা গোলাপ ফুলের পাপড়ী ইহাদিগের প্রত্যেককেই অস্ততঃ অস্থায়ীভাবেও প্রস্তর সমৃশ কঠিনরূপে পরিবর্তিত করিতে পারিবেন এবং তখন উহাদিগকে হাতড়ী সাহায্যে চূর্ণ করা সম্ভবপর হইবে। বর্জনশীল রবারের নলও তরল বায়ুর মধ্যে নিষ্পত্তি হইয়া উহার ছিত্তিশাপকতা (elasticity) হারাইয়া

ফেলে এবং আঘাত লাগিলেই চৰ্প হইয়া পড়ে। কেবল ইহাই নহে, স্লোরিন, কারবন ডাই অক্সাইড প্রযুক্তি গ্যাসও তরল বায়ুর সংস্পর্শে জমিয়া দানাদার পদার্থে পরিণত হয়।

এই যে কারবন ডাই অক্সাইড গ্যাস যাহা কারবনিক এসিড নামেও অভিহিত হইয়া থাকে উহাকে আমরা অঙ্গারঘঘজ বাষ্পও বলিতে পারি। কে না জানে সৃষ্টিয়া ইহা নানা উপায়েই প্রস্তুত হইতেছে। অত্যেক প্রাণীই নিঃখাস ত্যাগ কালে কিয়ৎ পরিমাণে এই বাষ্প বাতাসে ছড়াইতেছে। ইহা মানবের স্বাস্থ্যের পক্ষে অনিষ্টকর বলিয়া ভগবানের বিচিত্র বিধানে বৃক্ষরাজি এই বাষ্পটী দিনমানে গ্রহণ করে এবং অয়জান (oxygen) ত্যাগ করিতে থাকে। বৈজ্ঞানিক দেখিলেন এই বাষ্পটী অনিষ্টকর হইলেও নানা উপায়ে ইহা প্রচুর পরিমাণে প্রস্তুত হইতেছে। অতএব ইহাকে কার্য্যে নিযুক্ত করা আবশ্যক। অধুনা ইহাকে বিবিধ উপায়ে ব্যবহার করা হইতেছে। আশা করি ইহার ব্যবহার সম্বন্ধে দ্রুতিটী কথা এখানে উল্লেখ করিলে অপ্রাসঙ্গিক হইবে না। তরল অয়জানের শায় এই গ্যাসটি ও ঘনীভূত হইয়া লোহ সিলিণ্ডারে আবদ্ধ হইতেছে এবং যথেচ্ছ ব্যবহারের জন্য দেশ বিদেশে প্রেরিত হইয়া থাকে। এই গ্যাস সিলিণ্ডারের মুখে একখানি ক্যানভাস নির্মিত ব্যাগ বাঁধিয়া গ্যাস খুলিয়া দিলে অঙ্গারঘঘজ ক্রত বাষ্পীভবনের ফলে জমিয়া বরফের শায় শুভ খণ্ডে পরিণত হয়। এই খণ্ডগুলি কোনও পাত্রে রাখিয়া দিলে পার্শ্ববর্তী যাবতীয় পদার্থ হইতে তাপ গ্রহণ করিয়া উহা বায়বীয় ক্লপ ধারণ করে এবং পার্শ্বের পদার্থগুলি তাপ হারাইয়া শীতল হইতে থাকে। লঙ্ঘনে দেখিয়াছি পথে পথে আইসক্রীম বিক্রেতারা ইহারই সাহায্যে আইসক্রিম তৈয়ারী করে। কলিকাতায়ও অল্পকাল পূর্বে ইহার আমদানী হইয়াছে। এই বাষ্পই জলে জৰীভূত হইয়া সোডাওয়াটার বোতলে স্থান পাইয়া থাকে।

এই বাষ্পের আৱণ একটী বিশেব গুণ এই যে, উহার পরিমাণ বাতাসে বৃদ্ধি প্রাপ্ত হইলে মানবের বেক্রপ খাস কষ্ট আৱস্থা হয়, তেমনি দহন কার্য্যও সে বাতাস দ্বাৰা সম্পৰ্ক হয় না। এই বাষ্পটী বায়ু অপেক্ষা অধিকতর ভাৱী, এই জন্য কোনও পাত্ৰ হইতে উহাকে ঢালিলে ক্রমে

অপেক্ষাকৃত হাতা বাতাসকে সরাইয়া সেই স্থান ইহা অধিকার করে। এই জগতে কোনও পাত্র মধ্যে জলীয়মান পেট্টেল প্রভৃতি পদার্থের উপরি ভাগে এই গ্যাস ঢালিয়া দিলে তৎক্ষণাং অগ্নি নির্বাপিত হইয়া যায়। এই গুণের জন্য অধুনা ইহাকে যদ্ব সাহায্যে দূরবর্তী স্থানে ছড়াইয়া অগ্নি নির্বাপন কার্যে ব্যবহার করা হইতেছে।

এই যে দুইটা বায়বীয় পদার্থের ঝুপ পরিবর্তনের কথা বলিলাম ইহা অকৃত পক্ষে রাসায়নিক পরিবর্তন নহে, কেবল অবস্থার পরিবর্তন মাত্র; ইহাকেই ইংরাজিতে physical change বলিয়া থাকে। এইবার রাসায়নিক পরিবর্তন সম্বন্ধে দুইটা কথা বলিব।

রাসায়নিক পরিবর্তন প্রধানতঃ দুই বা ততোধিক অণু অথবা পরমাণুর সহিত সংঘটিত হয় এবং ইহার কলে প্রায়ই নৃতন শক্তির স্ফুরণ হইয়া থাকে। প্রথমতঃ দুইটা রাসায়নিক পরিবর্তনের নির্দশন দিব যাহাতে বাহ্যিক বর্ণের পরিবর্তন দেখা যাইবে এবং পরবর্তী উদাহরণে নৃতন শক্তির স্ফুরণ লক্ষ করিবেন। ফিনোল থ্যালিন (phenol phthalein) একটা বর্ণহীন জৈবিক পদার্থ। ইহার সুসামান্য জ্বনে এক খণ্ড বন্ধ সিক্ত করিয়া পরে উহাকে এমোনিয়ার জলীয় জ্বনে ডুবাইলেই সুন্দর গোলাপী রঙের উন্তব ঘটিবে। এই বর্ণটা কিন্তু স্থায়ী নহে, অল্পক্ষণ পরেই উহা উড়িয়া যাইবে।

কংগো রেড (congo red) অণ্য একটা জৈবিক পদার্থ। ইহার জলীয় জ্বন সাহায্যে বন্ধ মধ্যে রক্ত রাগের সঞ্চার করা যায়, কিন্তু অল্প পরিমাণ হাইড্রোচ্লোরিক অম্ল (Hydrochloric acid) লাগিতেই বর্ণ পরিবর্তিত হইয়া নৌল রঙে পরিণত হয়।

এই উন্তয় ক্ষেত্ৰেই উল্লিখিত পদার্থগুলিৰ মধ্যে রাসায়নিক পরিবর্তন সংঘটিত হইয়াছে এবং তাহারই কলে আমরা বাহ্যিক ঝুপেৱ পরিবর্তন লক্ষ কৰিয়াছি। এইবার এমন একটা রাসায়নিক পরিবর্তনেৱ কথা বলিব যাহার কলে প্রচুর পরিমাণে উভাপেৱ স্ফুরণ হইয়া থাকে।

একটা পোৱাসিলেনেৱ বাটাতে পটাশ ক্লোরেট এবং চিনিৰ সূজ্জ চূৰ্ণ একত্র কৰিয়া উহার সহিত অল্প মাত্রায় ফ্লুশিয়াম অথবা বেৱিয়াম নাইট্রেট চূৰ্ণ মিলিত কৰিলে যে মিশ্রণ পাওয়া যায় তাহার মধ্যে গাঢ় সালফিউরিক

এসিডের একটা মাত্র কোঁটা পড়িতেই ক্রমাব্বরে লাল এবং সবুজ রঙের আলো জলিয়া উঠিবে।

পটোশ পারম্যান্গানেটের নাম অনেকেই শুনিয়াছেন এবং উহার গাঢ় বেগুনি রঙের চূর্ণও অনেকেই দেখিয়াছেন। প্রিসারিণও অভ্যন্তর সাধারণ বস্তু। পটোশ পারম্যান্গানেট চূর্ণ একটা পোরসেলেনের বাটাতে রাখিয়া তন্মধ্যে কিয়ৎ পরিমাণ প্রিসারিন ঢালিয়া দিলে অল্পকাল মধ্যেই যে রাসায়নিক ক্রিয়া সংঘটিত হয় তাহার ফলে বিগুল পরিমাণে উভাপের আবর্ত্তার ঘটে এবং অগ্নি প্রজ্জলিত হইয়া উঠে।

অতএব দেখা যাইতেছে যে, কোনও কোনও রাসায়নিক পরিবর্তনের ফলে যথেষ্ট উভাপের সৃষ্টি হয়। এইরূপ নব উপজ্ঞাত শক্তিকেও অধুনা অনেক প্রয়োজনীয় কার্যে নিযুক্ত করা হইয়াছে। তাহাদেরই একটার পরিচয় এখানে দিতে চাই।

দ্বাই খণ্ড সৌহকে সংযুক্ত করিতে অনেক পরিশ্রমের প্রয়োজন হয়। এই উদ্দেশ্যে কর্মকারের গৃহে যে বিরাট আয়োজন করিতে হয় তাহা আপনাদের অনেকেরই সুপরিচিত। কিন্তু ১৮৯৮ খ্রিস্টাব্দে হান্স গোল্ড শ্বিট যে ধারমাইট প্রথার আবিষ্কার করিলেন তাহার ফলে কর্মকারের কারখানাও মালুমের পকেট মধ্যে অমণ করিতে আরম্ভ করিয়াছে। এই প্রথার অল্প একটু পরিচয় দিলেই আপনারা বুঝিতে পারিবেন অধুনা সৌহের শ্যায় ধাতুর সংযোজন কার্য কর সহজে সাধিত হইতে পারে।

ধাতু মাত্রই অয়জ্ঞান সহযোগে ধাতব অয়জ্ঞের সৃজন করে। কিন্তু বিভিন্ন ধাতুর অয়জ্ঞান গ্রহণ এবং ধারণ করিবার শক্তি এক নহে। কেহ বা সহজেই অয়জ্ঞানের সহিত সংযুক্ত হইতে পারে, কেহবা তত সহজে মিলিত হইতে পারে না। এখন এলুমিনিয়াম সুপরিচিত ধাতু, অয়জ্ঞানের সহিত মিশ্রিত হইবার আগ্রহ ইহার এত অধিক যে, সৌহ, ম্যান্গানিজ এবং ক্রোমিয়াম প্রমুখ ধাতুর অয়জ্ঞের মধ্য হইতে ইহা সহজেই অয়জ্ঞান বাস্পটা গ্রহণ করিতে পারে এবং এই গ্রহণ কার্য্যের ফলে যে বিগুল উভাপের সৃষ্টি হয় তাহার পরিমাণ 3000° হইতে 3500° পর্যন্ত উঠিয়া থাকে। এই তাপ মাত্রায় যাবতীয় ধাতুই বিগলিত হইয়া তরলজ্ঞপ পরিগ্রহ করে। ছাইটা

লোহের খণ্ড জুড়িতে হইলে উপর লোহাম্বজ (ferric oxide) এবং এলুমিনিয়াম ধাতুর চূর্ণ একত্র মিশ্রিত করিয়া তৎপরি অন্ন পরিমাণে বেরিয়াম পার অক্সাইড রাখা হয় এবং একটা ম্যাগনেসিয়ামের তার তলা পর্যন্ত প্রবিষ্ট করাইয়া উহাতে দিয়াশালায় সাহায্যে আগুণ লাগান হয়; তারে ঐ তার অলিয়া নৌচে পর্যন্ত যাইবার সময় প্রচণ্ড তাপের স্থষ্টি করে এবং লোহাম্বজ হইতে ধাতব লোহ নির্গত হইয়া বিগলিত অবস্থায় নিম্নের লোহ খণ্ডের উপর পড়িয়া উহাদিগকে সংযুক্ত করিয়া দেয়। এইরূপ রাসায়নিক ক্রিয়ার সাহায্যে ক্রোমিয়াম, ম্যান্গানিজ প্রভৃতি ধাতুও প্রস্তুত হইতে পারে।

বৈজ্ঞানিকের সতর্ক দৃষ্টির সম্মুখে প্রকৃতি নিত্য নৃতন সত্ত্বের সঙ্কান দিতেছেন। একটা উদাহরণ দিতেছি। হাইড্রোজেন এবং অক্সিজেনের পরিচয় মানব অপেক্ষাকৃত অধিককাল পূর্বে পাইয়াছে; অতএব ইহাদিগকে পুরাতন পদার্থ বলা যাইতে পারে। কিন্তু অন্নকাল পূর্বে সঙ্কান মিলিয়াছে যে উদ্ঘানের আরও একটা সহোদর বর্তমান। এতদিন আঘাগোপন করিয়া থাকিলেও গত ১৯৩২ খ্রষ্টাব্দে মানব ইহাকে আবিষ্কার করিয়া ফেলিল। উদ্ভানের সহোদরের নামকরণ ছি-উদ্ভান করিলে আপনারা হয়তো অনেকেই হাসিয়া ফেলিবেন, কিন্তু পাশ্চাত্য বৈজ্ঞানিক ইহাকে এইরূপই একটা নাম দিয়াছেন। কেহবা ইহাকে ডাইপ্লোজেন এবং কেহ ডিউটেরিয়াম বলিয়া থাকেন। অম্ভানেরও ঐরূপ দুইটা isotopic রূপ পাওয়া গিয়াছে। এই নবাবিস্কৃত ছি-উদ্ভান অম্ভান সহযোগে নৃতন একরূপ জল প্রস্তুত করে। উহাকে বর্তমানে ভারী জল বা Heavy water নামে অভিহিত করা হইতেছে।

ভারী জলের আবিষ্কার সম্বন্ধে রাসায়নিকের চির জাগরুক তীক্ষ্ণ দৃষ্টির ফলে। এইরূপ তীক্ষ্ণ দৃষ্টি না রাখিলে অতীতের অনেক তথ্য আজিও অনাবিস্কৃত রহিয়া যাইত। সে খুব বেশী দিনের কথা নহে,—যে দিন জার্মান রাসায়নিক ইরা রেমবেন স্টাকারিন নামীয় নিরতিশয় মিষ্ট পদার্থটার সঙ্কান লাভ করিয়াছিলেন। সাধারণ শর্করা অপেক্ষা উহা ৫০০ গুণ অধিক মিষ্ট। অধুনা অধিকতর বিলেতী জলে (Aerated water) যে মিষ্ট পদার্থ ব্যবহৃত হয় উহা স্টাকারিন, শর্করা নহে। সুদূর করাসী দেশের স্থুবিধ্যাত মহিলা রাসায়নিক মাদাম কুরী এক অস্রগীয় সঙ্ক্ষ্যায় প্রত্যক্ষ করিয়াছিলেন যে,

পিচ ব্রেগ নামক খনিজ জ্বয়ে একটা স্বত্ত্ব: উজ্জল পদার্থ বর্তমান রহিয়াছে। স্যুষ পরীক্ষার ফলে উহার মধ্য হইতে যে বিশ্বাকর ধাতু প্রস্তুত হইল তাহার নাম রেডিয়াম। বিশ্বের কল্যাণ করে আজ ইহা অপরিহার্য। এই পদার্থ হইতে অভিশয় শক্তিশালী আলোকরশ্মি অনবরত: বিচ্ছুরিত হইতেছে এবং ইহারা এত শক্তিশালী যে যথেষ্ট ঘন সৌসার পাত ভেদ করিয়া উহা গমন করিতে পারে। একদিন দেখা গেল যে, এই জ্বয়টা অধিক কাল চর্চের সম্মিক্তে থাকিলে ঐ স্থানে নিরতিশয় যন্ত্রণাদায়ী ক্ষতের সৃষ্টি করে এবং এই ক্ষত সাতিশয় সঙ্কটজনক ক্যানসার রোগের সূচনা মাত্র। হোমিওপ্যাথির তত্ত্বাদুর্ঘায়ী এই পদার্থ পরে ছুরারোগ্য ক্যানসার রোগে একমাত্র ঔষধ বলিয়া পরিগৃহীত হইয়াছে। অধুনা জগতের বিভিন্ন দেশ প্রচুর অর্থ ব্যয় করিয়া এই পদার্থ সামাজিক পরিমাণেও আহরণ করিতেছে, এই ছুরারোগ্য ক্যানসার রোগের প্রতিকার করে।

রাসায়নিক আবিক্ষার করিলেন যে, মানবের প্রিয় খাতু শর্করা, খেতসার, তুলা এবং বৃক্ষ বস্তুলের মধ্যে ঘনিষ্ঠ সম্পর্ক রহিয়াছে। বাহিকক্রাপে উহারা সম্পূর্ণক্রাপে বিভিন্ন দেখাইলেও উহাদিগের অণুগুলির মধ্যে বেশ একটা পারিবারিক সম্বন্ধ বর্তমান। এই আবিক্ষারের ফলে তাহারা নির্ণয় করিতে চেষ্টা করিলেন যে, অপেক্ষাকৃত সহজ প্রাপ্য জ্বয়গুলির ছল্পাপ্য অধিকতর মূল্যবান পদার্থে পরিবর্তিত করা সম্ভবপর কি না। তাহাদিগের এই চেষ্টাও আংশিক ভাবে সফল হইয়াছে।

মধুর মিষ্টতা একটা মাত্র পদার্থের জন্য নহে, পরস্ত উহার মধ্যে শর্করা জাতীয় কতকগুলি মিষ্ট পদার্থ বর্তমান; গুকোষ ইহাদিগের অগ্রতম। গুকোষ শর্করা হইতে প্রস্তুত হয়, আবার খেতসারও (starch) এই পদার্থে পরিণত হইয়া থাকে। রাসায়নিকের কুশলি হস্তে বৃক্ষের বস্তুলও এই গুকোষে ক্লাপাস্তরিত হইয়াছে। কিন্তু এই শেষোক্ত প্রথাটা এখনও ব্যয়বহুল রহিয়া গিয়াছে বলিয়া এই উপায়ে গুকোষ প্রস্তুত করিয়া বাণিজ্য চলিতে পারে না, তবে ভবিষ্যতে হয়তো একদিন সহজতর উপায়ে কার্ডকেও মানব খাতু সামগ্ৰীতে পরিণত করিতে পারিবে। বর্তমানে কিন্তু বৃক্ষের বস্তুল নৱনানীর পরিধেয় বজ্রে পরিবর্তিত হইতেছে প্রচুর পরিমাণে। বৃক্ষের এই অংশ

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সেলিউলোজ নামে পরিচিত ; এই সেলিউলোজ হইতে রাসায়নিক পদাৰ্থ এবং
মুকুট সাহায্যে কৃত্ৰিম রেশম প্ৰস্তুত হইতেছে ।

এইবার বিভিন্ন বক্তৃর রঞ্জন সম্বক্ষে রাসায়নিকের নৃতন চেষ্টার কথা এবং সামগ্র্য বলিয়া আজিকার মত বিদ্যায় লইব। আদিম যুগে বৃক্ষের পত্র, পুষ্প, কাণ্ড এবং মূল প্রভৃতি নানা স্থান হইতে বিভিন্ন রং আহ্বত হইত। কিন্তু বিংশ শতাব্দীর মানব স্বাভাবিক উপাদানের উপর নির্ভর না করিয়া তাহার পরীক্ষাগারে অঙ্গু উপায়ে বিভিন্ন বর্গরাজি প্রস্তুত করিতেছে। রাসায়নিকের এই চেষ্টা ফলবত্তী হইয়াছে কৃৎসিত কয়লার কল্যাণে। পাথুরিয়া কয়লা হইতে আলকাতরা নামীয় একটা বিসদৃশ নাতিতরল পদার্থ পাওয়া যায়। ইহাকেই নানাকৃত জৈব রাসায়নিক পদার্থ প্রস্তুত করিবার জন্য নিযুক্ত করা হয়। এই সকল নব নির্মিত বিশিষ্ট পদার্থের কতকগুলির সাহায্যে কিরণে বন্ধ রঞ্জিত করা সম্ভবপর তাহাই এখানে বলিব।

একটী কাচের পাত্রে কিয়ৎ পরিমাণে নাইট্রোনিলিন সইয়া উহাকে হাইড্রোক্লোরিক অম্ল সহযোগে জলে শুলিয়া লউন এবং পরে অল্প পরিমাণ সোডিয়াম নাইট্রাইটের জলীয় জবন উহাতে মিশাইতে থাকুন। এইরূপ মিশ্রনের সময় সমস্ত পাত্রটী বরফের মধ্যে ডুবাইয়া শীতল রাখিতে হইবে। এই পাত্রটীকে ক নামে অভিহিত করুন, ইহার মধ্যে গীতাত জলীয় জবনটী অন্য পদার্থ সহযোগে বিভিন্ন রং উৎপাদন করিবে। এইবার অন্য একটী পাত্রে (খ) নাইট্রোনিলিনের পরিবর্তে বেনজিডিন সইয়া পূর্ব বর্ণিত উপায়ে অন্য একটী জলীয় জবন প্রস্তুত করুন। এখন কতকগুলি পরিষ্কার ধোতবন্দের খণ্ড সইয়া উহাদিগকে পৃথকভাবে সোডিয়াম হাইড্রক্সাইড এবং বিটাঞ্চাফথল, রেসুরসিনল, কারবলিক এসিড ও স্থালিসাইলিক এসিড প্রভৃতি পদার্থের জলীয় জবনে সিস্ত করুন এবং পরে এই সিস্ত বন্ধগুলি শুক করিয়া ক অথবা খ পাত্রে ডুবাইলে দেখিবেন এই বর্ণহীন বন্ধগুলি শেষের পদার্থগুলির তারতম্য অনুসারে বিভিন্ন বর্ণের আভা গ্রহণ করিবে। এই নবজ্ঞাত রংগুলি রক্ত বর্ণ, বেগুনি অথবা হরিঝার আভা গ্রহণ করিতে পারে। ইহাদিগের সাহায্যে বন্দের উপর বিভিন্ন রংএর অঙ্কিত চিত্রও প্রকাশিত হইতে পারে। এইরূপ আর একটী পদার্থ প্রিমিউলিন দ্বারা বন্দের উপর ফোটোও ছাপান যাইতে পারে।

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বিজ্ঞানের বহুল চর্চা দ্বারা পার্কাত্য দেশগুলি নানা ভাবে সমৃদ্ধ হইয়াছে। আমাদের দেশেও এইরূপ শিক্ষার প্রচলন ঘটিলে কুমোই মধ্যবিত্ত লোকদিগের মধ্যে কর্মহীন যুবকের যে হাহাকার উঠিয়াছে তাহা অঢ়িয়ে বিদ্যুরিত হইবে। আমার মনে হয় অধুনা বিজ্ঞান শিক্ষার প্রতি দেশের জনসাধারণের মধ্যে আগ্রহ বাড়িয়াছে; ইহাতে সত্যই আশার উজ্জ্বেক হয় এবং ভবিষ্যতের একটা উজ্জ্বল চিত্র মানস চক্ষে ভাসিয়া উঠে। মনে হয় এ দেশেও পুনরায় সমৃদ্ধি লাভ করিয়া জগৎ মধ্যে নিজেকে প্রতিষ্ঠিত করিতে পারিবে।

PREVENTION OF BLINDNESS IN BENGAL.

*A Lecture illustrated by lantern slides by Lt.-Col. E. W. O'G.
Kirwan, M.B., F.R.C.S.I., I.M.S.*

According to the census figures of 1931 the total number of blind people in Bengal is 37,500 and for every one person blind there are three partially blind, making a total of 1,12,500. These figures are most probably on the low side and no one would be surprised if the actual figure is well over 2,00,000. We know that 60 per cent. of blindness is due to conditions which are either preventable or curable so that in Bengal there are over 1,00,000 persons who are unnecessarily blind and who are a burden to themselves, their relatives and to the community in general.

The incidence of blindness increases from birth to the 10th year of life. The major causes of blindness in this period are preventable. From the 11th to the 40th year it is more or less steady. Then there is a steady rise to the 70th year and a very sharp rise afterwards. The major causes in the declining years of life are curable. In the early years of life the responsibility to look after the sight rests with the parents or guardians.

Of the principal factors which are responsible for such a large number of blind persons in Bengal: the most important is ignorance. Propagation of knowledge in simple methods of prevention of blindness should be taught, not only by doctors but by parents, guardians and teachers in the schools. That ignorance plays such an important part in the cause of blindness can be inferred from the fact that blindness is rare amongst Europeans and educated Indians. The other factors are apathy, poverty, superstition, quackery, lack of co-operation and the preventable diseases such as babies' sore eyes, keratomalacia, small-pox, and syphilis as well as the curable diseases such as cataract, glaucoma and ulcers of the eye.

Good eye sight is our birthright. For children it is their happiness, for adolescents it is essential for their training and their future career in life, for adults it is their bread winner and in old age it is their solace.

The front part of the eye which appears dark in colour is composed of transparent cornea, the anterior chamber containing a clear fluid for the nourish-

ment of the internal structures, and the iris which is the pigmented diaphragm, and the central aperture in which is called the pupil. Behind the iris is the lens which is held in position by fibrous bands. The back of the eye-ball is composed of a strong, elastic white coat which is called the sclerotic and which protects the very delicate structures of the eyeball. The visible portion of the sclerotic is covered with a thin transparent membrane called the conjunctiva which is reflected from the eyeball on the inner portions of the eyelids. The conjunctiva is connected with the superficial part of the transparent cornea. The interior of the eyeball—can be seen with special instruments. Behind the lens lies a jelly-like transparent substance called the vitreous. Behind this lies the light sensitive nerve tissue membrane, the retina. The nerve fibres of the retina collect behind the eye-ball and leave it as the optic nerve. The retina lies on the choroid coat which is composed of fine blood vessels. It will thus be seen that the eye acts like a photographic camera but with a slight difference. The diaphragm which is the iris, works automatically and the retina is not required to be pushed forwards or backwards in order to focus the image on it. The focussing is carried out by changes in curvature in the front part of the lens. It will be seen that if there is any obstruction to the passage of light into the eye by an opacity of the cornea, lens or vitreous, the vision will be interferred with. If the retina becomes diseased, damaged or detached, the sight will also become affected.

The image of the object is always focussed on the retina, one image on each eye. The impressions of these two images are carried by the optic nerves to the back parts of the brain on both sides and so a single object is seen in all its perspective and colour. If the optic nerve is damaged or diseased in any of its course from the retina to the back part of the brain, the sight will be affected to a greater or lesser extent.

In the normal eye the image of the object is accurately focussed on the retina but in *a long-sighted eye* the eyeball is so small that the object does not form a sharp image on the retina and rays of light come to focus behind the retina. Suitable convex glasses will bring the image to a focus on the retina.

In a short sighted eye. The eye-ball is too large and is longer than before and backwards than the normal eye hence the image of the object is focussed in front of the retina and the person cannot see distant objects

distinctly. A short sighted person holds a book very close to the eye as he cannot see distinctly reading in normal position. A short sighted eye is a diseased eye and is caused by excessive close work, such as eye strain caused by studies in schools, and colleges and is most common in delicate children. Short sightedness should be corrected by the wearing of correct glasses and the limitation of study. It is likely to increase, so the eyes of short sighted persons should be examined at least twice a year. Careful instruction should be given to parents, guardians or school teachers who are responsible for the welfare of short sighted children, to prevent the eyes from deteriorating.

By an incorrect position of both the student and the reading lamp, the light falls directly on the eye and indirectly by reflection upon the pages of the book, causing the eye to be strained. The body is bent and the chest compressed. Both positions are inimical to good health and good sight.

The incorrect way of holding a book and also an incorrect position for reading are always to be avoided. The book should never be held nearer to the eyes than 13 inches.

The correct position for study should be when body is erect, the head is slightly bent forward and the light comes over the left shoulder.

(1) Shortsighted eyes are weak and diseased eyes. If the shortsightedness is of a high degree, it should be a source of great anxiety.

(2) There is no cure for shortsightedness. Medicines, exercises of the eyes etc. are of no use whatsoever. With proper care shortsightedness should not increase.

(3) Correct glasses should be constantly worn, otherwise the shortsightedness will increase.

(4) Children of shortsighted parents are very liable to be shortsighted themselves. Special cares should be taken of their eyes.

INFLAMMATION OF THE CONJUNCTIVA. The transparent thin membrane covering the white of the eyes and inside of the lids is liable to inflammation due to infection by virulent germs. If the germs are not very virulent nature prevents infection by washing them away with the tears.

There are some virulent germs which may infect the conjunctiva and cause inflammation. These germs can be seen when magnified over thousand

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times, so you can understand how minute they are. Infection with any of these germs unless treated early and correctly may cause blindness.

There are also some dreadful diseases of the conjunctiva. Infection takes place during birth. Any of the germs shown before can cause it but the commonest cause is an infection with gonococci. The eyes become red, the lids swollen and thick pus comes out. Once this disease develops even the most skilful treatment cannot always save the eye, since the inflammation very rapidly spreads to the transparent cornea. The cornea is rapidly destroyed by the action of the germs, leaving the child completely blind.

"Babies' sore eyes" is a very dreadful disease. It can however be prevented very easily. As soon as the baby is washed after birth, two drops of 1 per cent. freshly prepared silver nitrate solution should be dropped into each eye. This should be done either by the doctor himself or by the midwife in his absence. If this method of prevention has not been taken and if the baby's eyes get red and watery a few days after birth, he should be taken without any delay to an eye hospital. If the child is to be treated at home send for an eye doctor at once. In the meantime, wash the eye every hour with either boric or salt lotion (one tea spoonful of boric acid or one tea spoonful of clean salt to one pint of boiling water). Whatever friends and relations may say do not depend on "quack" medicines. The disease is a very dreadful one and there should be no delay in commencing proper treatment by an eye doctor, otherwise delay may lead to tragic results. Remember the discharge from the eye is very infectious. The hands of attendants should be carefully washed and all cotton wool swabs used for cleaning the eye should be burned.

There is no more pathetic sight than a blind child. His life is one of darkness and sadness. He is also a burden to his relations. If the child goes blind it is not his fault. Until the child grows up the responsibility of looking after the sight rests with his family and guardians. Blindness means darkness instead of colour and brightness in a child's life.

What do you wish your child to be? Surely the reply is easy? But due to apathy, ignorance and neglect blindness is common in children.

There is a disease of the conjunctiva popularly known as "Pink Eye". It is common in Bengal, especially before the monsoon. The eye becomes very red, the eye lids are swollen and a discharge comes out of the eyes. This

discharge is at first watery but later contains a lot of pus. The disease is infectious and is caused by virulent germs. Early treatment is very important as the earlier the treatment, the quicker the eye gets well. The patient should be segregated, especially in a family or in a school. The patient's towels and clothing should be kept separate. The eyes should never be cleansed by the mother's sari or other clothing as this is a certain way of spreading the disease. Care should be taken that the patient should not infect the other eye. Remember :—(1) Redness of the eye is never normal. There is no such thing as a cold in the eye. It is always due to infection by germs. (2) Sticking together of the lids in the morning is a sign of inflammation. (3) Secretions from the eyes especially when mixed with pus, are always infectious. (4) Early treatment by an eye doctor is very important.

The disease known as *Phlyctenular conjunctivitis* is common in debilitated children and those suffering from enlarged tonsils and adenoids. A healthy child does not get this disease. It attacks the conjunctiva and may spread to the cornea causing ulcers. It is associated with much watering. The child shuns the light and keeps the eyelids tightly closed. Treatment consists in attending to the general health of the child, such as good food and fresh air. Removal of the tonsils and adenoids should be carried out.

The condition commonly known as granular lids, or trachoma, is uncommon in Bengal but is responsible for large numbers of blind people in Northern India. It starts with a sensation of grittiness in the eyes, watering and sensitivity to light. If treatment is neglected the disease attacks the cornea and the sight becomes affected. The disease is highly infectious. Prevention :—Over crowding should be avoided. Children should be taught personal cleanliness and also the habit of not using the towels, hankerchiefs and clothing of other people. If the child is suspected to be suffering from this disease he should be examined by an eye doctor and should not be allowed to attend a school. If the disease is treated in the early stages it will be completely cured and the eyesight will not be affected. Avoid "quack" remedies—they do immense harm and valuable time is lost. In neglected cases the damage done to the transparent cornea cannot be undone.

A common cause of blindness amongst children due to a disease which leads to softening of the transparent cornea, is known as keratomalacia. In

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Bengal this disease is the commonest cause of blindness in children under 5 years of age. It is due to the want of an important food factor which is called vitamin "A" and which is present in large amounts in milk, butter and ghee. Prevention :—Although the disease is a dreadful one, its prevention is very easy. Breast fed infants of a healthy mother never suffer from the disease. Nursing mothers in poor health should be given two tea spoonfuls of cod liver oil twice daily with their food.

Interstitial keratitis is due to the poison of hereditary syphilis conveyed by the parents. It occurs in the young between the ages of 5 to 20 years and is very common in the large cities in India. The disease begins with redness and watering of the eye and inability to open the eyes. The transparent cornea develops ground glass appearance and the eye-sight rapidly falls. To prevent this dreadful disease the expectant mother should be examined in the very early months of pregnancy and proper treatment carried out. If this is done, a healthy child will be born, free from the poison of syphilis in his blood. Interstitial keratitis can be cured if it is treated early by an eye doctor. The duration of the treatment is very long : twelve months or even more.

A child suffering from an ulcer of the cornea, cannot open his eyes in ordinary day light. The eyes are watering and there is a feeling of some foreign body inside the eye. With early treatment he can be completely cured.

Small-pox is a very dangerous disease. A large number of people in Bengal die from it. Of those who survive, a large number become blind. Yet this disease is very easily preventable. Every baby should be vaccinated successfully before it is two months old and successful re-vaccination should be carried out every five years. Persons suffering from small-pox become blind due to ulceration of the cornea. In nursing a case of small-pox the eyes should be repeatedly cleaned with boric lotion and should not be allowed to remain open. They can be kept closed very easily by applying a piece of sticking plaster from the upper lid to the cheek. If any eye complication arises an eye doctor should be sent for at once. The eyes should also be carefully guarded in other long contagious diseases, such as typhoid fever, measles, cholera etc.

INJURIES TO THE EYES. Injuries to the eyes cause large amount of unnecessary blindness. Coal particles or hot cinders may get into the eye during a railway journey especially if the person sits facing the engine. A pair

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of goggles will prevent this. Watching a knife grinder is dangerous. Do not allow your children to go too near one. Watching a blacksmith work at his anvil may result in an iron particle getting into the eye. Cutting paddy is also a common cause of injury to the eye. The Dewali is responsible for a large amount of unnecessary blindness caused by fireworks and the bursting of crackers. Do not take part in the manufacture or the throwing of these crackers and you will not lose your sight. A stone from a catapult is a frequent cause of loss of an eye.

Never trust your lay friends to remove a foreign body from the eye. They may only infect the eye and make matters worse. Consult an eye doctor.

People who work with dangerous machinery should wear goggles. These should be supplied by the employer. And the same applies to stone masons and wood choppers.

Injury to the eye with fish hooks and consequent loss of the eye is sometimes seen in the hospitals. Burns caused by lime, caustic and acids should be immediately attended to by washing the eye with clean water and then putting some castor oil drops into the eyes. Never delay in taking the person at once to an eye hospital.

The following diseases are common in Bengal and often affect the eyes :—

(a) *Syphilis*. The most dangerous of all poisons to the eye. It is very common and frequently attacks the eye and is one of the great causes of blindness in Bengal. It is usually painless. Early treatment will cure the disease.

(b) *Gonorrhœa*. A common cause of blindness in babies and due to infection at the time of birth. It also occurs as the result of infection by fingers, towels etc. The eyes should be frequently washed with salt lotion (one tea spoonful of salt to one pint of water) and an eye doctor sent for as soon as possible.

(c) *Pyorrhea*. This is due to septic teeth, brought about by chewing pan and betel and failure to cleanse the mouth. It is a very common cause of serious eye diseases.

(d) *Epidemic dropsy*. This disease is often erroneously called beri-beri. Glaucoma is a very common complication, is a very dreadful disease and a very common cause of preventable blindness. Early treatment will cure glaucoma. An early sign in glaucoma is a rainbow coloured ring round a light.

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Remember there is no pain or redness of the eye. The disease progresses slowly and if untreated ends in blindness. Early treatment is most important. Consult an eye doctor if you see these rainbows. There is a distinct difference between a normal field of vision and the field of vision in glaucoma. As the disease progresses the fields become narrower.

A very common condition among elderly people is cataract. In this disease the lens becomes opaque. In early cases be careful not to confuse it with glaucoma, as both diseases are common in elderly people. The treatment is absolutely different. Removal of the cataract by an eye doctor will result in normal vision. When the sight of elderly persons begins to fail, consult an eye doctor without delay.

It is a common sight in India "quack" couching a cataract. These "quack" usually come from Northern India and wander from village to village saying they can cure cataract, but 80 per cent. of the eyes they couch go blind. Never trust your eye to a coucher as he cannot restore your sight.

Chronic inflammation of the tear sac is very common, especially in women. On pressing over the inner side of the eye, pus comes out. If this is not treated by an eye doctor it may lead to severe inflammation and loss of the eye.

If a child is blind he should be sent to a blind school where he will be educated and be able to learn how to earn a livelihood. Otherwise he will be a burden to himself and to his relatives.

If you are interested in the movement for the prevention of blindness in India, join the Association for the Prevention of Blindness, Bengal, the registered Office of which is in the Eye Infirmary, Medical College, Calcutta.

শিক্ষার আধুনিক ধারা

গ্রিকিতীশ্বরসাম চট্টপাণ্ড্যার

আধুনিক শিক্ষায় আধুনিক ধারা ও পদ্ধতি আজকের আলোচ্য বিষয়। এ সমস্কে ইংরেজী ও অঙ্গান্ত ভাষায় অনেক বই ছাপা হয়েছে। সে সকল বই আপনারা অনেকে পড়েছেন; সে পুঁথিগত বিভার আবহাসির কোন সার্থকতা নাই। কলিকাতার শিশুদের শিক্ষার ভার গ্রহণ করে দশ বৎসরে যে অভিজ্ঞতা লাভ করেছি ও তার ফলে শিক্ষা সমস্কে ইউরোপের পদ্ধতিবিষয়ে যে নৃতন দৃষ্টি লাভ করা সম্ভব হ'য়েছে, সেই বিষয়ে সামান্য আলোচনা করাই আজ সঙ্গত। গত বৎসর অল্প সময়ের জন্য পশ্চিম ও উত্তর ইউরোপের কয়েকটা দেশে শিক্ষাপদ্ধতি দেখবার যে স্মরণ ঘটেছিল, সে সম্পর্কেও ছ'একটা কথা বলব।

শিক্ষার ভিত্তি সমস্কে আমরা আজকাল ভাল করে ভাবি না; এ জন্যই প্রধানতঃ আমাদের দেশে শিক্ষা ও জীবনযাত্রার ভাল যোগাযোগ খুঁজে পাওয়া যায় না। এজন্য অবশ্য ঐতিহাসিক কারণও বর্তমান। সে বিষয়ে বিশদ আলোচনা আজ বাহ্যনৈমিত্ত নয়।

এদেশে ইংরেজী আমলে শিক্ষার পতন, শাসকদের দোভাসীর আবশ্যকতা হ'তে। আমাদের প্রাচীন জ্ঞানের সঙ্গে পশ্চিম দেশের নৃতন সভ্যতার সার অংশ সমন্বয় করতে পারলে আমাদের জাত পুরাতনের মূল্যবান সম্পদ রক্ষা করে তার শৃঙ্খল হ'তে মুক্ত হতে পারে, এ কথা যে সকল মহাপুরুষ বুঝেছিলেন—রাজা রামমোহন প্রমুখ সেই মনীষীরা, পশ্চিম দেশের সাহিত্য, বিজ্ঞান, দর্শন প্রভৃতির চর্চা ও আলোচনার জন্য প্রকৃত উচ্চশিক্ষার ব্যবস্থা করেন। কিন্তু এ দেশের ইংরেজী শিক্ষার জন্মগত দোষ এই সাধু সংস্পর্শে দূর হয় নাই।

এই সকল ও অঙ্গান্ত কারণে, বাঙালী জাতি আজ শ্রমবিমুখ ও পরের দাস। পরাধীন জাতির স্বত্ত্ব হচ্ছে, তারা নিজের মধ্যে কাকেও বড় হ'তে দিতে চায় না; পরের সাহায্যে তাকে বরং নামিয়ে দিতে চেষ্টা পায়। নিজের

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মঙ্গলের অন্ত তারা ঈর্ষা পরিভ্যাগ করে সভবত্ব হতে পারে না। এ দোষ বাজলায় সর্বক্ষেত্রেই প্রবল।

আমাদের শিক্ষার সমস্যা—এই বাজলী জাতিকে আবার মাঝুষ করে গড়ে তোলা, এইদিকে দৃষ্টি রেখেই আমাদের শিক্ষার পক্ষতি পরিবর্তন করতে হবে। আজকের আলোচনায় শিক্ষার আধুনিক বিকাশে এই ধরণের সমস্যার সমাধান কর্তব্যনি সম্ভব হয়েছে, সেই দিকে কোঁক দিয়েই কথা বলব।

পশ্চিম ইউরোপের শিক্ষার সমস্যা অন্ত কারণে উৎপন্ন হ'লেও সে বিষয় হ'তে আমাদের শিক্ষা লাভ করবার যথেষ্ট জিনিষ আছে।

পশ্চিম দেশে সমস্যা উপস্থিত হ'য়েছে যান্ত্রিক সভ্যতা ও ধনী-সম্পদায়ের সর্বগোসী প্রসার হতে। আগেকার দিনে শিল্পী কাজ করত তার ছোটখাট যন্ত্র নিয়ে, নিজের চোখ ও হাতের কৌশলে সুন্দরের কাপ তার শিল্পবস্তুতে প্রকাশ পেত। এর অন্ত আবশ্যক হ'ত নিজের কাজের উপর শিল্পীর দৰদ; আর সে অন্ত পরিশ্রম করবার স্পৃহা। এই যে কাজে একনিষ্ঠতার অভ্যাস, কাজ ও শিল্পীর পরম্পর সম্ভব হ'তে জগলাভ করত, আজ যন্ত্রের ঘূর্ণে সে জিনিষ আর মেলে না। এখন যন্ত্রেই হ'চ্ছে শিল্পী, শিল্পী এখন মজুর। কিন্তু মাঝুমের মহুয়াত্ব বাদ দিয়ে শুধু যন্ত্র ও রোবো (Robot) দিয়ে সংসার চলে না। সাহিত্যিক আল্ডস হাঙ্গলির (Aldous Huxley) এ বিষয়ে একটা চমৎকার ব্যঙ্গ চিত্র আপনারা অনেকেই নিশ্চয় পাঠ করেছেন। ব্যবসায় ক্ষেত্রেও মাঝুমের এই দশা। বড় বড় ধনী বণিকদের বিরাট বিপণিশুলি বাজারের মত সব রকম মাল সরবরাহ করে; এদের শাখাপ্রশাখা প্রতি সহরে ও পল্লীতে ছড়িয়ে পড়েছে, অন্ত দোকানের চেয়ে মাল এখানে সন্তা ও একদম। এদের সঙ্গে পালা দিয়ে ছোট দোকানীর দাঢ়ান অসম্ভব। তারা ক্রমে এই সব দোকানে মাইনে করা বিক্রেতায় পরিণত হ'চ্ছে। কিন্তু ছোট দোকানের ভিতর দিয়ে মিতব্যয়িতা, বহুদিকে দৃষ্টি প্রভৃতি মানা শুণ অর্জন ক'রেই অনেক সময়ে ছোট ব্যবসায়ী বড় হয়। অর্থ মাঝুষ গড়বার এ পথটীও বড় হ'য়ে আছে।

তাই অশ্ব উঠেছে যে, এই সকল শুণ, যেশুলি মাঝুমের না থাকলে সে ভবিষ্যাতে দাঢ়াতে পারবে না এবং যে শুণ সে আর নিজের কাজের সম্পর্কে অর্জন করবে না, সেই সকল শুণ শিক্ষালয়ের পক্ষতির পরিবর্তন করে তাদের শিক্ষা সম্পদের অস্তিত্ব

চলে কি না। এজন্তও দেশের পণ্ডিতেরা মনোবিজ্ঞান, জীবতত্ত্ব ও বৃত্তবের তথ্যগুলি আলোচনা করে এই সিদ্ধান্তে পৌঁছেছেন যে, হাঁ তা সম্ভব এবং তার উপায় আছে।

মানুষের মগজের বিকাশ ও যুক্তির উৎকর্ষের ইতিহাস আলোচনা করে, এ বিষয়ে, কয়েকটা মূলস্থূলের সকান পাওয়া যায়। জঙ্গল শুকিরে যাওয়ার ফলে মানুষের আদিপুরুষ মর্কটপ্রায় জীব যেদিন মাটিতে নামতে বাধ্য হ'ল, চোখের সঙ্গে পায়ের গতির সময় এনে হাতকে নৃতন কাজে লাগাল, সেইদিন সূরু হ'ল মানুষের সত্ত্বিকার জন্ম। ভূতস্ববিদ্বের আলোচনা হ'তে জানা যায় পৃথিবীতে প্লাওসিন যুগে পর্যায়ক্রমে তুষার ও ঔপোর খণ্ডবৃগ এসেছিল পৃথিবীর নাতিশীতোষ্ণ মণ্ডলগুলি এর ফলে একবার বরফে আবৃত হ'চ্ছিল, আবার দীর্ঘকাল গাছ ফলে ফুলে ভরে উঠেছিল। উষ্ণ মণ্ডলে এই সময়ে প্লাবন ও মরুভূমির অবস্থায় পর্যায়ক্রমে উন্নত হয়েছিল প্রকৃতির এই পরিবর্তনশীল পারিপার্শ্বিক অবস্থায় যে সব মর্কট মানুষ নৃতনের স্পর্শে অভিভূত না হয়ে অথবা তার অভুভূতিকে দূরে রেখে পালাবার চেষ্টা না করে, নিজেদের জীবন নৃতন সরঞ্জামের সাহায্যে তার উপযুক্ত করে, আণবিক্ষা কর্তৃ পেরেছিল, তারাই হাইডেলবার্গ, নিয়েগুরটাল প্রভৃতি মানুষ জাতের স্থষ্টি করে। আর যারা অবশ অলস হয়ে বসেছিল, বা পালাবার চেষ্টা করেছিল, তারা পিথেকানথোপাস সিনানথোপাস প্রভৃতি লুণ জাতির নমুনা হিসাবে কিছুকাল টিকেছিল মাত্র।

মানুষের মগজের বিকাশের দ্বিতীয় ধাপ ওঠে পাথর ও হাড়ের অন্ত ও যন্ত্রের আবিক্ষারের ফলে। নানারকমের নৃতন হাতিয়ার ও যন্ত্রের আবিক্ষার ও ব্যবহারে চোখ ও হাতের যে অগাধ নৃতন সময়ের আবশ্যক হয়েছিল, তারাই ফলে এযুগে মানুষের মস্তিষ্ক আবার উন্নতি ও প্রসার লাভ করে। এই কৌশল ও কাঙ্গলগুলি যখন আর নৃতন রইল না, তখন এই যুগের মগজের বিকাশ সমাপ্ত হ'য়ে এল। যে সব জাতি জীবন ধারণের নৃতন উপায় বা কৌশল উন্নাবন করল; অথবা কৃষি ও পন্থ পালন আবিক্ষার করে নিজেদের সামাজিক জীবনে অনেক বৈচিত্র্য ও সময় আনলে, তারাই উন্নতির অগ্রদূত হয়ে আবার এগিয়ে চলল।

পরিবর্তনশীল প্রকৃতির নিয়মই এই যে, কোন মুহূর্তে তার পদক্ষেপের সঙ্গে তাল রেখে পা ফেলে চলে যেতে না পারলেই আঘাত পেতে হয় ও খর্ব হ'য়ে

যেতে হয়। এক সময়ে প্রকৃতির নৃতন স্পর্শে সাড়া দিয়ে সেই গভিহন্দের ভিতর দিয়ে বড় হ'য়ে আবার গভাইগতিকের অঙ্গসরণ করেছে ও ফলে মিলতরে নেমে পড়েছে এইজন্ম অনেক জীব ও মানুষের নম্না পাওয়া যায়। ব্যবহারের অভাবে মাংসপেশী কয় পেয়ে ওশেনিয়ার অতিকায় পাখী মোয়া ওড়বার সামর্থ্য হারিয়ে অবশেষে ছোট ছোট হিংস্র পশু ও শিকারীর তাড়নায় লোপ পেয়ে গেছে।

মানুষের ভিন্ন জাতেরও এই দশা মাঝে মাঝেই ঘটেছে। প্রকৃতির পারিপার্শ্বিক অবস্থাকে কিছু পরিমাণে আয়ুত করে যে আদিম বড় মাথাওয়ালা জাতি আফ্রিকার মালভূমিতি পাথর ও হাড়ের হাতিয়ারের যুগে নিজেদের শ্রেষ্ঠতা প্রতিপন্থ করেছিল, তাদের এখনকার বংশধরগণের মন্তিক পূর্বপুরুষদের অপেক্ষা ছোট। যুব সম্মতঃ এই প্রাচীন জাত সে আমলে প্রাধান্ত লাভ করে তাদের আবিষ্কর্তা ও প্রতিভাশালী লোকদের সনাতন ব্যবস্থার মোহে মুঝ হ'য়ে নৃতনের স্পর্শকে অগ্রাহ করেছিল ও ফলে অধঃপতিত হয়েছিল।

শিক্ষার উদ্দেশ্য চরিত্রগঠন, বুদ্ধির উৎকর্ষ সাধন এবং মানুষের যুগ্মযুগান্তর সঞ্চিত যে অভিজ্ঞতা সেই জ্ঞান ভাণ্ডারের দ্বারা শিক্ষার্থীর কাছে উন্মুক্ত করে দেওয়া। সেখাপড়া, অঙ্গ শেখান এইগুলিতে মানুষের অতীত অভিজ্ঞতার সঞ্চিত জ্ঞান দৈনন্দিন জীবনে ব্যবহার করবার উপায় করে দেয়। কিন্তু চরিত্রগঠন ও বুদ্ধির উৎকর্ষ সাধন, যন্ত্রের মত, শিক্ষা দেওয়া সম্ভব হয় না। এজন্য পদ্ধতির ও বিষয়ের বৈশিষ্ট্যের আবশ্যক।

মানব জাতির শৈশবের অভিজ্ঞতা আজিকার মানবশিশু সংক্ষেপে কিন্তু সমগ্রভাবে পুনরাবিনয় করে, একথা মনস্তত্ত্ববিচার নির্দেশে সমর্থিত হয় না। কিন্তু যে বিশেষ কারণে মানুষের মগজ উন্নতিলাভ করেছিল, তার মূলসূত্র ধরে শিক্ষায়তনে শিশুর শিক্ষামূলক পারিপার্শ্বিক অবস্থা যদি উপযুক্তভাবে রচনা করা হয়, তাহলে শিশুর মন ও মন্তিক যে বিশেষভাবে সাড়া দেয় একথা জোর করে বলা যেতে পারে, তা ছাড়া যে অবস্থার ফলে বুদ্ধি ও মগজ বিকাশ লাভ করেছে, সেই জাতীয় পারিপার্শ্বিক অবস্থায় যে সব চেয়ে কম আয়াসে বুদ্ধির নৃতনতর উৎকর্ষ সম্ভব হবে, এ কথা বোঝাও ছুঁহ নয়। এজন্য আধুনিক শিক্ষার পদ্ধতিতে প্রতিপদেই স্বেচ্ছাধীন পাঠের ও নিজ হতে শিক্ষার পারিপার্শ্বিক অবস্থার সঙ্গে সমবয় করবার সুযোগ শিশুদের দেওয়া হয়ে থাকে। তবে এ বিষয়ে অবশ্য

বয়স হিসাবে পদ্ধতির কিছু পার্থক্য ঘটে। এজন্ত নিভাষ্ট শৈশব হতে বয়ঃসন্ধিকাল পর্যন্ত ছেলেমেয়েদের বিভিন্ন বয়সের বোগ্যতা বিচার করে ইউরোপে ভিন্ন ভিন্ন স্কুলের শিক্ষালয় স্থজন করা হয়েছে। ইংলণ্ডে এইদিক হতে পাঠ্য বিষয় ও শিক্ষায়তনের স্তর বিভাগে অস্থান্ত দেশ অপেক্ষা বেশী স্বব্যবস্থা করা হয়েছে। সেজন্ত এ বিষয়ে ইংলণ্ডের এই ব্যবস্থাগুলির উল্লেখ করা হবে।

শৈশব হতে বয়ঃসন্ধিকাল মোটামুটি তিনধাপে বিভক্ত করা যেতে পারে। প্রত্যেক ধাপের আরম্ভ হচ্ছে শিশুদের দেহ মনের ক্রত বৃদ্ধির কাল। ধাপের শেষ ভাগ হচ্ছে এই বাড়ের ফলে দেহ ও মনের যে প্রসার হয়, সেইটেই নৃতন অভিজ্ঞতার ও পুষ্টির দ্বারা ভরাট করে নেওয়ার সময়। ইংলণ্ডে এই তিনটি ধাপের অঙ্গুয়ায়ী তিন শ্রেণীর বিষ্টালয় আছে।

(১) শিশু বিষ্টালয় ; (Infant Schools ; Nursery Schools), এগুলিতে হই হতে সাত বৎসরের শিশুদের রাখা হয়। চার পাঁচ বৎসর বয়স পর্যন্ত কোন নির্দিষ্ট লেখা পড়া এদের করান হয় না। এই সময় আগাগোড়া এবং এর পরেও অনেকটা শিশুরা নিজেদের কাজ নিজেরা বেছে নেয়। এই বিষ্টালয়গুলিতে প্রথমে শিশুদের অভ্যাস গঠন এবং তারপরে স্পর্শ, রূপ প্রতৃতি ইত্যিরে শিক্ষা দেওয়া হয়।

এই শিক্ষার জন্য ডাক্তার মন্টেসরীর স্থৃত পদ্ধতি ও শিক্ষার সরঞ্জাম ইউরোপের সর্ববিদ্যুত যথেষ্ট ব্যবহৃত হ'য়ে থাকে। এ সম্বন্ধে বিশেষ আলোচনা অনাবশ্যক। মাতৃভাষায় এই সকল শিক্ষায়তনে গোটা কথা ও বাক্যের মারফত শিক্ষা দেওয়া হ'য়ে থাকে। লিপিশিক্ষা অক্ষরযূলক নয়। ইতিহাসের দিক দিয়ে বলা যায় এ পদ্ধতি ক্রাসীদেশে উৎপন্নি লাভ করে; সেখানে সংখ্যাগণন শিক্ষাও “গ্লোবাল” (method globale) নামে এই পদ্ধতি অবলম্বন করে দেবার চেষ্টা চলেছে। অক্ষরযূলক ও গ্লোবাল পদ্ধতির মাঝামাঝি উপায় অবলম্বন করে আমার “লেখাপড়া” বইখানিতে বাঙালাভাষা শেখাবার কিছু নৃতন উপায় দেখান হয়েছে। এই বইখানির একটা বৈশিষ্ট্য আপনাদের নজরে আনতে চাই—এই বইয়ের কথাগুলি শিশুদের কথিত ভাষা সংগ্রহ করে, তাই হ'তে বাছাই করা।

(২) জুনিয়ার বা বালক বালিকাদের শিক্ষালয়, এখানে সাত হ'তে এগার বৎসর বয়স পর্যন্ত পড়াশুনা করান হয়। এখানেও প্রতি পদে যথাসম্ভব ছেলেরা

নিজেদের সমস্তান্তরের নিজেই সমাধান করবার স্বীকৃতি পাওয়া। ডল্টন প্ল্যান নামে শিক্ষায় স্বায়ত্ত্বাসন ও স্বাধীন পাঠের পদ্ধতি এই বয়সে পুরাপুরি অবলম্বন করা সম্ভব হয় নাই। তার পরিবর্তে এই সকল স্কুলে এক একটা শ্রেণীকে ছোট ছোট দলে ভাগ করে অনেকটা স্বাধীনভাবে কাজ দেওয়া হয়। শিক্ষক মাঝে মাঝে খবর নেন এবং দরকার হ'লে সাহায্য করেন। ডল্টন প্ল্যানের মত এখানে ছেলেরা নিজেদের পড়া কর্তৃ হল ঘাটাই করে না। শিক্ষক মশায় এই পরীক্ষাটি নিজেই করে থাকেন।

ইতিহাস ও ভূগোল শিক্ষায় এই বিচালনাগুলিতে এবং এর উপরের স্তরের বিষয়তনে প্রোজেক্ট (Project) পদ্ধতির যথেষ্ট ব্যবহার করা হয়। ঐতিহাসিক ঘটনা অভিনয়ের ভিত্তি দিয়ে এবং ভূগোলের জ্ঞান পর্যটনের মারফত এই পদ্ধতি অবলম্বন করে শিক্ষা দেওয়া হয় কর্পোরেশন প্রাথমিক বিচালয়ে আমরা পর্যটনের মারফত ভূগোল শিক্ষার ব্যবস্থা হ'ল একটা মডেল স্কুলে করেছি।

উপরে বিবৃত, জুনিয়ার স্কুলের পরিবর্তিত ডল্টন প্ল্যান সম্বন্ধে আপনাদের একটা বিষয়ে দৃষ্টি আকর্ষণ করতে চাই। আধা ডল্টন প্ল্যান কর্তৃকৃত বেল ও ল্যাঙ্কাষ্টার-এর মনিটর পদ্ধতি হতে উন্নত বলা চলে। আপনারা জানেন, বেল এই পদ্ধতি মাজাজে ভারতীয় ‘সর্দার পড়ুয়া পদ্ধতি’ দেখে নকল করেন। এজন্য বিলাতে এই মনিটর পদ্ধতি প্রথমে মাজাজ পদ্ধতি নামে খ্যাত হয়। পরে অবশ্য অনেকে ভুল করে এটা বেল ও ল্যাঙ্কাষ্টারের নিজস্ব আবিক্ষার বলে মনে করেন ও সেইলেপ লিখেছেন। এই সর্দার পড়ুয়া পদ্ধতি হতে ১১১২ বৎসর বয়সেও ছেলেদের জন্য ছোট ছোট দল ভাগ করে তাদের আলাদা আলাদা স্বাধীনভাবে পড়তে দিয়ে পরে পড়া ঘাটাই করা। আমাদেরই বাঙ্গলা দেশে হিন্দু কলেজ নামে খ্যাত পুরাতন স্কুলে একজন বাঙালী শিক্ষক একশত বৎসর পূর্বে বেশ কৃতকার্য্যতার সহিত ব্যবহার করতেন। রামচন্দ্র মিত্র নামক এই শিক্ষক মহাশয়ের শিক্ষা-পদ্ধতির বিশেষ বিবরণ আপনারা ভুদেব মুখোপাধ্যায় মহাশয়ের জীবন চরিত্রের প্রথম খণ্ডে দেখতে পাবেন। এই দেশজ পদ্ধতি আপনারা ইচ্ছা করলে সহজেই আপনাদের শিক্ষালয়ে প্রবর্তিত করতে পারেন। বিলাতী নামে এই পদ্ধতির আমদানী না করলেও চলে।

(৩) কিশোর বিচালয়। এগার বৎসর বয়সে জুনিয়ার স্কুলের ছেলেরা

উচ্চশিক্ষালয়ে চলে যাবার জন্যে একটা পরীক্ষা দেয়। শ্রেষ্ঠ ছাত্র ও ছাত্রীরা বৃত্তি ও অস্থান স্মৃতিধা পেয়ে উচ্চ বিদ্যালয়ে ও পরে সেখান হতে বিশ্ববিদ্যালয়ে চলে যায়। বাকী ছেলেমেয়েরা এই কিশোর বিদ্যালয়ে পড়ে (Senior & Central Schools) এখানে ছেলেমেয়েদের এমন শিক্ষা দেওয়া হয়, যাতে তারা পনের বেল বৎসর বয়সে স্কুল হতে বার হ'য়ে, আর কোন বিশেষ শিক্ষানবিশি না করে সোজাস্মৃজি ব্যবসায়, ও কারখানার কাজে ঢুকতে পারে। এইজন্য এই স্কুলগুলিতে ব্যবসায়, শিল্পকার্য, প্রভৃতি ভিন্ন ভিন্ন ধারার শিক্ষার ব্যবস্থা আছে। কিন্তু এই বিশেষ শিক্ষার ফলে যাতে ছাত্র ছাত্রীদের সাধারণ বা কৃষিমূলক শিক্ষা বাদ না পড়ে এদিকে পূর্ণ দৃষ্টি রাখা হয়। উদাহরণ ঘৰপ বলা যেতে পারে যে, এই সকল শিক্ষায়তনে নিম্নলিখিত বিষয়গুলি শিক্ষা দেওয়া হয় :—

মাতৃভাষা, ইতিহাস, ভূগোল, গণিত, একটা বিদেশী ভাষা, ব্যায়াম, সঙ্গীত, চিত্রাঙ্কন ও হাতের কাজ।

হই বৎসর এই শিক্ষা করার পর এর সঙ্গে নিম্নলিখিত বিষয়গুলি সেখান হয়—

(ক) শিল্পের ধারা—ছেলেরা ব্যবহারিক বিজ্ঞান, ব্যবহারিক গণিত, যান্ত্রিক চিত্রাঙ্কন ও হস্তশিল্প শিক্ষা করে। মেয়েরা স্কুলমার শিল্প, সেবাশুণ্ডী ও গৃহসজ্জার সব রকমের কাজ শিক্ষা করে।

(খ) ব্যবসায় ও চাকুরীর ধারা। এ বিভাগে ব্যবসায়ের হিসাব রাখা, কারবারের ব্যবস্থা, সঙ্কেতে লিখন ও টাইপ করা শেখান হয়।

অন্ন কয়েক সপ্তাহ হ'ল হাতের কাজ, ব্যবহারিক শিক্ষা প্রভৃতির আবশ্যকতা সহজে আলোচনা করে' দিল্লীতে কেন্দ্রীয় শিক্ষাপরামর্শ সভা হ'তে কিশোরদের অন্ত খানিকটা এইরূপ ব্যবস্থা করার উপদেশ দেওয়া হ'য়েছে। বাঙ্গালা-সরকারের মতই দিল্লীর কেন্দ্রীয় শিক্ষাসভা কৃষ্টিগত (cultural) শিক্ষা কর্মাবার কথা তুলেছেন। পশ্চিমদেশের যে সকল ব্যবস্থার অনুকরণ করে' এই সব কথা তোলা হ'য়েছে, সেখানে কিন্তু সাধারণ কৃষ্টিগত শিক্ষা পৃথক বিদ্যালয়ে দেবার বা কর্মাবার কোনও প্রচেষ্টা হয় না। আমাদের মনে হয় বাঙ্গালা-সরকারের উপদেশ মত উচ্চ ইংরেজী বিদ্যালয়-সংখ্যা (যেখানে অকারণ প্রতিযোগিতা হচ্ছে, সেখানে

ছাড়া) হ্রাস করা কিম্বা দিলীর কেন্দ্রীয় সমিতির পরামর্শমত কেরাণী, কৃষক প্রভৃতির জন্য আলাদা আলাদা শিক্ষাপ্রতিষ্ঠান গঠন করা—এই হ'ল ব্যবহার কোনটাই বাহ্যনীয় নহে। এইবার ইংলণ্ডে সাধারণ-নির্বাচনে জয়ী হ'য়ে যে দল ভ্রিটিশ-সাম্রাজ্যের হর্ষা-কর্তা—পাল্রামেটে মন্ত্রিহ গ্রহণ করেছেন, তাঁরাও নিজেদের দেশের জনসাধারণের কৃষ্টিগত ও ব্যবহারিক শিক্ষার সমন্বয়মূলক ব্যবস্থারই সমর্থন করে’ তাঁদের মতবাদ নির্বাচনকালে প্রচার করেছেন। বলা বাহ্যিক, এই মত সমস্ত শিক্ষার বিশেষজ্ঞদের সমর্থিত।

এই হ'ল বয়স হিসাবে শিক্ষার বিষয় ও শিক্ষায়তন বিভাগের কথা। এইবার শিক্ষার বিষয় ও পক্ষতির ভিত্তি দিয়ে দেহ ও মন গঠনের জন্য এবং চরিত্রগঠনের দিক হ'তে বাস্তিক যুগের সভ্যতায় বিশেষ সমস্তাঙ্গলির সমাধানের জন্য ইউরোপের কোনও কোনও অংশে যে সকল ব্যবস্থা করা হয়েছে তার কিছু আলোচনা করব। সেই সঙ্গে কলিকাতার প্রাথমিক বিষালয়ে আমরা কি করতে সমর্থ হয়েছি বা হই নাই, সে বিষয়েও হ'একটা কথা বলব। এই সকল সমস্তার সমাধানের উদ্দেশ্যে স্মুইডেনের পশ্চিতগণ ছেলেদের শিক্ষার জন্য তিনটি জিনিষের উপর ঝোক দিয়েছেন—(১) ব্যায়াম ও দেহগঠন, (২) হাতের কাজ ও (৩) প্রকৃতি পরিচয়।

স্মুইডিশ ব্যায়ামবীর লিং-এর পক্ষতি আপনাদের সুপরিচিত। সুস্কল বিচারের দিক হতে এই পক্ষতি সম্বন্ধে আপনাদের ভিত্তি মতামত থাকতে পারে, কিন্তু এই শ্রেণীর ব্যায়াম-চর্চায় যে দেহ দৃঢ়, কর্মক্ষম ও সুবল হয়, এ বিষয়ে কানুন সন্দেহ নাই। এখানে ছোট ছোট ছেলেমেয়েরা যে রকম নিয়মিত ও যে পরিমাণে ব্যায়াম করতে বাধ্য হয় তাতে শিশু বয়স হতেই কাষিক শ্রম-বিমুখতা দূর হ'য়ে যেতে বাধ্য। শুধু ছাত্র-ছাত্রী নয়, যে সকল মেয়ে ও পুরুষ শিক্ষক-শিক্ষয়িত্বীর কাজ নেবার জন্য প্রস্তুত হ'তে চান, তাঁদেরও ট্রেনিং কলেজের শিক্ষার সময় নিয়মিত ও সীতিমত ব্যায়াম করতে হব। ষষ্ঠকম, শুশু, উপসালা প্রভৃতি ছানে ট্রেপিং কলেজগুলিতে শিক্ষক-শিক্ষয়িত্বীদের দৈনিক ব্যায়াম চর্চার যে নমুনা দেখেছিলাম, তাতে মনে হ'য়েছিল, আমাদের ব্যায়াম-সমিতি-গুলিতে হাঁরা পাকা খেলোয়াড় বলে খ্যাত হন ও খবরের কাগজে হাঁদের ছবি দেখি, তাঁদের মত ব্যায়াম চর্চা এই সকল কলেজে প্রায় সকলেই করে’ থাকেন।

সাধারণত: এরা প্রতিদিনই এক ঘণ্টার উপর ব্যায়াম-চৰ্চা করেন। অনেক সময়ে ছুটিতে—বিশেষ শিক্ষালয়ে বেশী করে' ব্যায়াম শিক্ষা করে আসেন।

আমাদের দেশে—কি সাধারণ শিক্ষালয়ে, কি ট্রেনিং কলেজে এই ধরণের ব্যায়ামের খুবই আবশ্যক। আজকাল এ বিষয়ে কিছু ব্যবস্থা হ'য়েছে, কিন্তু সে অতি সামাজিক বলেই মনে হয়। দৈনিক ব্যায়াম কোথাও করান হয় না। আমাদের প্রাথমিক শিক্ষালয়গুলিতে আমরা প্রত্যহ খেলা-ধূলার ব্যবস্থা করেছি। কিন্তু ট্রেনিং কলেজে সম্ভাবন হ'বারের বেশী ব্যায়াম করান সম্ভব হয় নাই। এ বিষয়ে ছেলেবেলা হ'তে অনভ্যাসের ফলে এই সামাজিক বাধ্যতামূলক ব্যায়ামেও আমাদের শিক্ষকমণ্ডলী অসৃষ্টি। কিন্তু ঠারা ভাল করে' এই শ্রেণীগুলিতে এসেছেন ঠারা এর উপকারিতা বুঝেছেন বলে মনে হয়। আর এক কারণে ব্যায়ামের স্বব্যবস্থা আমরা করে' উঠতে পারছি না। সেটা এই যে, আমাদের প্রধান-শিক্ষকেরা ছেলেদের খেলা-ধূলা ও ব্যায়াম একটা অপ্রধান কাজ মনে করেন। এ বিষয়ে অভিভাবকেরাও কম দোষী নহেন। ফলে বাঙ্গলা, অঙ্গ, ইংরেজী প্রভৃতি পড়াবার মত যত্ন এ বিষয়ে দেখা যায় না। সুইডেনে এ বিষয়ে বিপরীত ব্যবস্থা। সেখানে ছোট-খাট পাঠশালায়—যেমন আমাদের গুলি—প্রধান-শিক্ষকই ব্যায়াম ও খেলার ক্লাশ নিয়ে থাকেন।

ও-দেশে ছোট পাঠশালাতে আর একটা বিষয়েও পড়াবার ভার সাধারণতঃ প্রধান-শিক্ষক নিজে নিয়ে থাকেন। সেটা হ'চে হাতের কাজ। শিক্ষায়তনে নিয়মিত ও ধারাবাহিকভাবে হাতের কাজ করা—সুইডেনে জন্মাত করেচে বললে অত্যুক্তি হয় না। ১৮৭৭ খঃ অবে এভাহামসন নামে এক ধনী ব্যবসায়ী নেস্ নামক হুদের দ্বীপে উপরীপে হাতের কাজ শেখার জন্য যে প্রতিষ্ঠানটা স্থাপন করেন, সেইটাই এই বিষয়ের প্রথম ও প্রধান। সেখানকার পদ্ধতি—নেসের পদ্ধতি বলে থ্যাত। সুইডেনের এই রকম হাতের কাজকে 'অ্রয়েড' বলে। হাতের কাজ আজকাল অন্ত দেশে ও কুলে হ'য়ে থাকে; আমরাও এ বিষয়ের প্রবর্তন করেছি। কিন্তু ছোট হেসের পড়া ও বুকি বিকাশের জন্য এর ব্যবহার সুইডিশ অ্রয়েডে অস্থ ও পূর্ণতা লাভ করেছে, বলা যেতে পারে। সে জন্য নেসের শিক্ষালয়ে প্রতি বৎসরই দেশ-বিদেশ হ'তে বহু শিক্ষক শিক্ষার্থী হ'য়ে হাতের কাজ শিখতে আসেন। ইংলণ্ডের শিক্ষা-বিভাগ

প্রথমে এ-বিষয় অগ্রাহ্য করলেও—এমন কি বাধা দিলেও, শেষ পর্যন্ত এ প্রণালীটা বিশেষ করে গ্রহণ করেছেন।

এ প্রণালীর বৈশিষ্ট্য এই যে, পর পর অনেকগুলি জিনিষ নমুনা দেখে তৈরী করিয়ে সব রকম যত্নের সব রকম ব্যবহার শেখান হয়। প্রথমে যে জিনিষটা তৈরী করান হয়, সেটা খুবই সামান্য; তারপর হিতীয় নমুনাটি করবার সময় আর একটা যন্ত্র কিংবা প্রথম যন্ত্রটিরই আরেক রকমের ব্যবহার শেখান হয়। এই রকম পর পর গোটা-পঞ্চাশেক জিনিষ তৈরী করে' কাজ শেষ হয়। প্রত্যেক জিনিষই ঘর-কলার আসবাব ও সাজ-সরঞ্জাম হিসাবে কাজে লাগবার মত হওয়া চাই। যে নমুনা দেখে জিনিষটা করা হবে, সেটার সঙ্গে মাপে এক স্ফূর্তির চেয়েও কম তফাঁ হলেই—তবে সেটা গোত্তুল হবে। জিনিষগুলি যেমন কাজের, তেমনি সুন্দর, এই হিসাবে বাছাই করা হয়। নমুনাগুলি যাতে একথেয়ে না হয় ও সেগুলির সঙ্গে যাতে দেশের শিল্পের যোগাযোগ থাকে, সেই জন্য প্রতি বৎসরই স্বীকৃত এক-একটি প্রদেশের ঘরোয়া আসবাব ও শিল্পের উৎ বেছে নেওয়া হয়। যে সকল শিক্ষকরা পূর্বে কিছু হাতের কাজ শিখেছেন, তারাই 'নেস'এ আসেন। এখানে হাতের কাজ ও ব্যায়ামে প্রত্যহ আট ঘণ্টা ধাটতে হয়। হাতের কাজের জন্য দৈনিক আরও ছ'ঘণ্টা সময় যেছায় কাজ করবার জন্য দেওয়া থাকে। প্রায় সকলেই এই সময় কাজ করেন। শিক্ষার্থীদের কোনও নমুনা নকল করবার সময় শিক্ষক কখনও ছাত্র বা ছাত্রীর জিনিষটির উপর নিজে এতটুকু যন্ত্র চালান না। আবশ্যিক হ'লে তিনি নিজে ঐ রকম আরেকটি জিনিষ করে' তাতে তাদের তুলচূকগুলি সংশোধন করে দেখিয়ে দেন।

আমাদের দেশে কোনও সরকারী ট্রেইিং-কলেজের হাতের কাজ শেখান বাধ্যতামূলক নয়। আমরা এ বিষয়টি বাধ্যতামূলক করেছি, কিন্তু খুবই সামান্য পরিমাণে। বেশীর ভাগ শিক্ষকই সামান্য কাগজ-কাটা ও বেতের কাজ শিখেই চলে যান। কাঠের কাজে কারও উৎসাহ দেখা যায় না। কলে পাঠশালাগুলিতেও হাতের কাজ নিতান্ত মাঝারি রকমের হয়। স্বীকৃত পক্ষতিতে শিক্ষক-শিক্ষিক্রীরা ঠিক কারখানার মজুরের মতন পরিমাণ করে' নিখুঁতভাবে কাজ করতে শেখেন। এদের দেখাদেখি ইংলিশেও এই ধরণে

শিক্ষকদের হাতের কাজ শেখাবার জন্য বিশেষ প্রতিষ্ঠান খোলা হয়েছে। আমি আমাদের ট্রেইনিং কলেজে এবিষয়ে ব্যবস্থা করবার জন্য কর্পোরেশনকে আমার বক্তব্য জানিয়েছি। আশা করি সকল হ'তে পারব।

এই রকম প্রতিষ্ঠানে তৈরী শিক্ষকের কাছে হাতের ওসব দেশে আয় ঐ নিয়মেই কাজ শিখে। ছোট ছেলেদের অবশ্য টানা রোজ আট-দশ টাটা খাটান হয় না। কিন্তু যা হয়, সেটা আমাদের ৪৫ মিনিটের ‘পিরিয়ড’ মোটেই নয়। পুরা একটি বেলা ধরে’ হাতের কাজ চলে। সপ্তাহে প্রত্যেক ছেলে অন্ততঃ দুদিন এইরকম হাতের কাজ শিখে। আপনারা জেনে স্থৰ্থী হবেন যে, কর্পোরেশনের প্রাথমিক বিঢালয়ে এই নৃতন বৎসর হ'তে তৃতীয় ও চতুর্থ শ্রেণীর ছেলেদের পুরা একবেলা হাতের কাজের ব্যবস্থা করতে আমি সক্ষম হয়েছি। স্থাইডেনের মত, এদের এখনও সপ্তাহে দুইদিন হাতের কাজ শেখান সম্ভব হয়নি। মনে রাখতে হ'বে, আমাদের পাঠশালার ছেলেরাও অবশ্য বয়সে ছোট।

আমাদের শিক্ষায়তন্ত্রলির উপরে যে সব উচ্চ ইংরেজী বিঢালয় আছে সেখানে ইচ্ছা করলে এবিষয় পুরাপুরি ব্যবস্থা হতে পারে। কেহ যেন মনে না করেন, যে সকল ছেলে বিশ্ববিদ্যালয়ে উচ্চশিক্ষা লাভ করবার জন্য উচ্চ ইংরেজী বিদ্যালয়ে পড়ে তাদের এরকম হাতের কাজ শেখার কোন সার্ধকতা নাই। হাতের কাজের ভিতর দিয়েই আদিযুগে মানুষের মগজ বিকাশ লাভ করেছিল ; একথা পূর্বেই বলেছি। যে সকল ছেলের মন সূক্ষ্ম তরঙ্গের দিকে যায় না, তাদের ধীশক্তি হাতের কাজের ভিতর দিয়ে ভাল রকম করে ফুরিত হতে পারে। যে-সকল ছেলের বৃক্ষি স্বভাবতই তীক্ষ্ণ, হাতের কাজের চর্কায় তাদের কর্মসম্ভব্য শক্তি বেড়ে যায়। স্থাইড্রা একথা ভাল করে’ বোঝে ; এজন্য শুধের দেশে, যে-সকল ছেলে উচ্চ শিক্ষার জন্য প্রস্তুত হয়, তাদের দিয়েও এমনি করে’ খাটিয়ে হাতের কাজ করায়। আমি ছাকহমে একটী উচ্চ স্থাইডিশ বিদ্যালয়ে কাঠের কাজের ঘরে দেশে এসেছি—ম্যাট্রিকের অন্ধযায়ী ও তার নৌচের দু’ তিনটী ফ্লাশের পাঁচ ছয়টা ছেলে মিলে আট হাত ও বার হাত দু’খানি স্মৃদ্র নৌকা তৈরী করেছে। এগুলি তারা নিজেরাই হুদে বেড়াবে বলে ছুটির সময় সখ করে’ তৈরী করেছে। এদের শিক্ষক বা মিস্ট্রিরা এই সব ছোট ছেলেদের তৈরী জিনিষ নিজেরা যত্ন

ভাল করে দিয়ে স্কুলের নাম জাহির করার চেষ্টা করে না। এ বিষয়ে শুধু কলিকাতার কেন, আমাদের দেশের যে কোনও বিদ্যালয় বিশেষ অপরাধী। আমাদের দেশের ছেলেদের হাতের কাজ তারা নিজেরা সংশোধন করে না। শিক্ষক-শিক্ষিক্রিয়া বা মিঞ্জি সে-গুলি ঠিক করে দেন। পরে, সেগুলি ছেলেমেয়েদের হাতের কাজ বলে' প্রদর্শনীতে দেখান হয়। এ রকম স্কুল হাতের কাজ শেখবার প্রথায় অমশীলতা কিন্তু একাগ্রতা জন্মাতে পারে না, স্থাইডিশ প্লয়েডে যে-রকম মাপ-জোপ করে কারখানায় খাটুনির মত মেহনতের সঙ্গে নিখুত কাজ করতে হয়, শুধু সেই রকম ব্যবস্থাতেই এই শুণগুলি ছাত্রেরা অর্জন করতে পারবে। সঙ্গে সঙ্গে সৌন্দর্য জ্ঞান এবং ব্যবহারিক-বৃক্ষিও যে জন্মায় তা বলা বাহ্যিক।

এখানে প্রশ্ন উঠতে পারে, এই রকম হাতের কাজ শেখাতে হলে, যেকেপ কারখানার ও সরঞ্জামের আবশ্যক, তার জন্য উপযুক্ত পরিমাণ অর্ধ পাওয়া সম্ভব নয়। যদি প্রত্যেক প্রাথমিক শিক্ষালয়ে একটি করে' কাঠের ও অন্যান্য হাতের কাজের ভাল কারখানা রাখতে হ'ত, তা হলে অবশ্য আমাদের মত গরীব দেশে বহুকাল এ ব্যবস্থা সম্ভব হ'ত না। কিন্তু আসলে এ-পরিমাণ খরচার কোন দরকার নাই। কারণ, এই রকম ভারী হাতের কাজ এগার বৎসর বয়সের পূর্বে আরম্ভ করা উচিত নয়। তার আগে শুধু কাগজ কাটা ও জোড়া, পশম বা ঢাকড়া দিয়ে জিনিস তৈরী ও বোনা—এই সব হাতের কাজ করান চলে ও উচিত। এগার বার বৎসরের ছেলেরা প্রাথমিক শিক্ষালয়ের শেষ-শ্রেণীতে পড়ে। তারা যেমন ভারি হাতের কাজ করতে পারে, তেমনি সেজন্য দরকার হ'লে সপ্তাহে একদিন ছ'তিন মাইল পথ হেঁটে কেন্দ্রীয় কোন শিক্ষালয়ের কারখানায় একবেলা হাতের কাজ শিখে আসতে পারে। ভাল করে কেন্দ্র নির্বাচন করতে পারলে, একই কেন্দ্রে আরও দশটা—অন্ততঃপক্ষে ছয় সাতটা শিক্ষালয়ের ছেলেরা পালাক্রমে একই কারখানায় হাতের কাজ শিখতে পারে। কলিকাতা কর্পোরেশনের কয়েকটা মডেল স্কুলের কারখানায় প্রত্যেকটাতে এইভাবে পালা করে, আরও পাঁচ ছয়টা করে' ছোট পাঠশালার ছেলেদের হাতের কাজ শেখবার ব্যবস্থা করা হ'য়েছে। যে কোন ছোট সহর—এমন কি বর্জিঝু বড় গ্রামে এই পদ্ধতিতে কেন্দ্রীয় কারখানা গঠন করে', সমস্ত ছেলেদের হাতের কাজ অন্ন ব্যয়ে শেখান ষেতে পারে।

নৃতন সরকারী পরিকল্পনায়, প্রাথমিক শিক্ষার প্রসারের জন্য, যে সকল অপেক্ষাকৃত বৃহৎ বিভাগয়ের কথা তোলা হয়েছে, সেগুলি কিঞ্চিৎ পরিবর্ত্তিত করে' এইরূপ কেন্দ্রীয় কারখানাসংযুক্ত বিভাগয়ে পরিণত করলে, স্ফুরণ ফলবে মনে হয়।

ডেনমার্ক কৃষি ও পশু পালনের দেশ, বাঙ্গালার মত অনেকাংশেই শ্বামল ও সমতল। এখানে ছোট সহরের পাঠশালায় হাতের কাজের মধ্যে বাগানে রীতিমত তরকারীর চাষ অন্তর্ভুক্ত। এসবিয়ার্গ বলে' ডেনমার্কের বন্দরটি আধাপল্লী আধা-সহর। এখানে একটা বড় প্রাথমিক শিক্ষালয়ে আমার ঘাবার স্থবিধি ঘটেছিল; তখন গ্রীষ্ম ও শরতের মাঝামাঝি সময়। সমস্ত দশ বিষ্ণা বিস্তৃত বাগানে দেখি—সারি সারি গাজর, শালগম, কপি প্রভৃতি ভিন্ন ভিন্ন রকমের তরকারী চাষ করা হয়েছে। এক একটি ছেলের ভাগে—এক ছাটাক আন্দাজ জমি পড়েছে। সেটি তিনি ফালি ক'রে তিনি রকমের করা হয়েছে। ছেলেদের ফালিগুলি পর পর সাজান; এক এক রকমের ফসলের ফালিগুলি ঠিক পর পর চলে গেছে; ফলে, সেগুলি হয়েছে—এক এক রকমের ফসলের এক একটা লম্বা ফালি ক্ষেত। ছেলেরা এগুলিতে এক সঙ্গে কাজ করে। এই চাষের কাজে এরা মজুর ব্যবহার করে না; মালীও থাকে না। ছেলেরা নিজেরাই মাটি কাটে, বাগান ঝাঁট দেয়, ক্ষেত নিড়ায় ও ক্ষেতে জল দেয়। শিক্ষক তাদের সঙ্গে কাজ দেখিয়ে চলেন ও সাহায্য করেন। আমাদের দেশের স্কুলেও এমনি করে কৃষি ও সমবায় শিক্ষা দেওয়া মোটেই শক্ত নয়। এখানেও কেন্দ্রীয় ব্যবস্থা কার্য্যকরী হতে পারে। কিন্তু কি হাতের কাজ, কি কৃষি—সব জায়গাতেই সত্যকার পরিশ্রম চাই; তবেই শিক্ষা সার্থক হবে। শুধু লোক দেখানর জন্য এসব করলে কোন ফল হবে না। সাধারণ বুদ্ধি বিকাশ ও মনের প্রসার বৃদ্ধির জন্য স্কুইডরা প্রকৃতি পরিচয় ও পরে প্রাকৃতিক বিজ্ঞানের উপর ঝৌক দেয়। স্কুইডেনে প্রত্যেক স্কুলেই একটা করে' বেশ ভাল প্রাকৃতিক 'মিউজিয়ম' আছে ও সেগুলিতে জীব-জগতের প্রগতি খুব স্বন্দরভাবে দেখাবার ব্যবস্থা আছে। মাঝুমের মন সত্যই উদার করতে ও মনে প্রকৃত বিনয় আনতে জীব ও মাঝুমের প্রগতির ইতিহাস চৰ্চা খুবই সাহায্য করে।

শিক্ষার পক্ষতি ও ধারা এইভাবে পরিবর্ত্তিত করলে, আমরা নিশ্চয়ই

আমাদের জাতির অমবিমুখতা, একনিষ্ঠার অভাব ও অদূরদৃষ্টি এবং পরম্পরের অতি ঈর্ষা ও বিদ্বেষভাব মোচন করে', অমশীলতা, একাগ্রতা, দূরদর্শিতা ও সাধারণের মঙ্গলের জন্য সজ্ঞবন্ধ হয়ে কাজ করবার শক্তি স্থজন করতে পারব।

আরেক বিষয়ে আগামাদের দৃ'একটা কথা বলতে চাই। সেটা ইউরোপের শিক্ষার আধুনিক বিকাশ সম্বন্ধে নয়। কিন্তু বিহুটা আমাদের দেশে আধুনিক শিক্ষার ধারার সঙ্গে ঘনিষ্ঠভাবে সংগ্রিষ্ট। ইউরোপে ও অস্যাঞ্চল সমস্ত স্বাধীন দেশে যারা যে ধর্ষে বিশ্বাস করে, তারা সেই ধর্ষে তাদের দেশের শিশু ও বালক বালিকাদের দীক্ষা দেয়। যেখানে কোন বিশেষ ধর্ম-শিক্ষার ব্যবস্থা নাই, সেখানে বিড়ালয়ে জাতীয় জীবনের আদর্শ সম্বন্ধে শিক্ষা দেওয়া হয়। আমরা বাঙালী হিন্দুজাতি—শৈশবে ধর্মশাস্ত্র পড়ান অঙ্গুচ্ছিত ও ক্ষতিকর মনে করি; সেই জন্য আমরা শিক্ষালয়ে অস্তত হিন্দু ছেলেমেয়েদের ধর্মশিক্ষা উঠিয়ে দিয়েছি। কিন্তু সে অভাব আমরা বাড়ীতে মেটাবার কোন চেষ্টা করি না। অথবা তার পরিবর্তে শিক্ষালয়ে জীবনের আদর্শ ও সার্থকতা সম্বন্ধেও কোন উপদেশের বা অন্য ব্যবস্থা করি নাই। পরাধীন দেশে প্রকৃত জাতীয় আদর্শ এভাবে প্রচারণ কঠিন। কিন্তু এ বিষয়ে আমাদের নিশ্চেষ্টতা ও ঔদাসীন্য আমাদের বিশেষ ক্ষতিকর হয়েছে। আমাদের শিক্ষায়তনে ছেলেরা নানা বিষ্টা চর্চা করে; সব বিষ্টার সার যে বিষ্টা যাতে জীবনের আদর্শ ও পথ নির্দেশ করে—সে বিষয়ে তারা অস্ত থেকে যায়। ফলে যখন যে ছজুগ উঠে, পশ্চিমের বড় জাতেরা বা এখানকার কোনও প্রতিভাশালী লোক যে নৃতন মত জোর করে প্রচার করেন, এরা তারই শ্রেতে তখনই ভেসে যায়। নিজেরা ভেবে কিছু করে উঠতে, কি গড়তে পারে না। যাদের অস্তরে জীবনের সার্থকতা সম্বন্ধে কোনও অঙ্গুচ্ছি জাগে নাই, তাদের কাছে হৃদিনে দীর্ঘকালব্যাপী উদ্যম ও ত্যাগের প্রয়াশ বৃথা। বাঙালী জাতির উচ্ছাসে যে সোজাৰ বোতলের জলের ফাঁপের সঙ্গে তুলনা করে কলক দেওয়া সম্ভব হয়েছে, তার কারণ এই অস্তসারণ্যতা। হিন্দুজাতির যে সকল প্রতিভাশালী পুরুষ, বা প্রতিভাসম্পন্ন লোকদের ঠিক নিম্নের স্তরের মনীষী ও কর্মদক্ষ লোকেরা এদেশে সামাজ অবস্থা হ'তে বড় হয়ে উঠেছেন ও দেশের মঙ্গলসাধন করেছেন, তাদের জীবনী আলোচনা

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করলে দেখতে পাবেন—হয় তারা প্রাচীন হিন্দু শিক্ষা-সম্পদ বাড়ীর আবহাওয়ায় মাঝুষ হয়েছেন ; না হয়, আধুনিক সভ্যতার ভাল অংশকে ধারা গ্রহণ করে প্রাচীন ঔদার্থ্যকে আরও প্রসার দিয়াছেন, তাদের মধ্যে জগ্ন বা শিক্ষালাভ করেছেন। একুল, উকুল ছকুল যাদের নাই তারা কোনও দিন বড় হয় নাই ও হ'বে না। শিক্ষার এই দিকটিতে দৃষ্টি দেওয়া আমাদের বাঙ্গলার হিন্দু-সমাজে বিশেষ আবশ্যিক হয়েছে। গৃহ-শিক্ষা এ বিষয়ে আর পূর্বকালের মত ফিরে আসবে বলে আশা করা ছৱাশ। আমাদের কর্তব্য শিক্ষালয়ে এর কিছু প্রতিবিধান করা।

শিশু বয়সে শান্ত চর্চা বাঞ্ছনীয় নয় বটে ; কিন্তু আমাদের উদার দর্শনের সার্বভৌম সমষ্টিবাদের অনেক তত্ত্বই প্রকৃতি-পরিচয়ের ভিতর দিয়ে দশ-এগোর বৎসর বয়স হ'তে শিক্ষা দেওয়া চলে। এই সময় ছেলেদের প্রত্যহ সকাল ও সন্ধিয়ায় কিছুক্ষণ একাগ্রচিত্তে স্থির হ'য়ে বসে এই সব বিষয়ে চিন্তার অভ্যাস করাও কিছু শক্ত নয় ; এ প্রাচীন রীতির নবপ্রবর্তনে মানসিক প্রসারের ক্ষতি হবে না, বরং গভীরতা বাঢ়বে। আশা করি, আপনারা এ বিষয়ে ভাল করে ভেবে দেখবেন।

THE VILLAGE SCHOOL

BY REV. F. RYRIE, M.A., OF HAT CHAPRA, NADIA DISTRICT.

We are all aware of the sad state of our village schools. From every angle the statistics bring out the same sad fact, that these schools are about as bad as they can be. Measure them by any recognised standard—the number of trained teachers, the number of children passing beyond the lowest classes, the proportion of the children of the province who are in school, the number of girls receiving education, the relation of the school teaching to life, the attendance or the punctuality,—by all and every standard, whether studied by themselves or in comparison with other provinces, they are thoroughly unsatisfactory. Their monument is an illiterate population and their most obvious achievement is that they and their teachers have for many years provided school pupils and others with a standing joke, inasmuch as children who wish to present a farce find it easiest to do so at the expense of the *gurumashai*, or the village *patsalas*.

May we find a ray of hope in that? Let us hope that a divine discontent has settled upon us. Be that as it may it is of little use to talk further about our weaknesses. It is the purpose of this paper to look at these weaknesses only with a view to seeing their root causes and finding the means by which they may be removed.

The Village Schools are so small, so scattered, so out of the way, and so hopelessly inefficient that we naturally tend to under-estimate their importance. When we stop to think of it we see that the village primary school is really the school of India. It has the vast majority of the children who are attending school. As a *village school* it has a first class influence to make or mar the life of the rural community on whose prosperity or otherwise the life of the whole country depends, and as a *primary school* it is the basis of our education. The village schools are the tiny roots of our whole educational system. Improve these and the life of the country will improve. Leave them as they are, and other efforts for the welfare of the country will be futile.

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I do not intend, however, to deal with the important questions of re-organisation which have received a good deal of attention in connection with the scheme recently presented to us for consideration by the Hon'ble Minister for Education. I propose to approach the question of the improvement of the village schools from the other angle, and to enquire what steps may be taken to so improve *quality* of the teaching and school work that these schools may serve the needs of the people in the times into which we are moving.

I venture to suggest that the radical defect of the village school might be shown by saying that it just is *not* a *village* school. It has nothing to do with the village except that it is located there and draws its pupils from there. A village is, or rather ought to be, a real community, and the village school should be a place where people are being trained for *that community*, and for that community as it is hoped it will be in the future. But immediately we look inside a village school we see no community there at all, but merely a mass of isolated units, often united only by a common sense of boredom. The school is a handful of loose sand and we are allowing ourselves to think that the new India will be built with such handfuls of loose sand.

What is the ideal held before the pupil's mind? Study and learn, he is urged, and you will get up in the world and prosper and be rich and be loved and honoured of all men. Was ever such mean selfishness inculcated? Study and learn and you may be able to pass out of this village life to the Eldorado beyond where men do not toil nor spin, but earn fixed salaries in a sedentary life. Where in all that is there any idealism or any sense of duty to the community? How can the new India be built up with a mentality like that? It is building with sand.

What is happening in this village school to the potential leaders of the community? Are they learning to lead? Rather they are learning to sit still, more or less, pursuing their own ends. Were they organising football or other games, were they working together to clean and keep clean, decorate and care for their class-room, were they organising together the work of a school garden or small efforts for the improvement, say, of the health of the village, were they working together to keep weather charts or to do various other things that call to be done in a school, were there any kind of co-operative endeavour, then we

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might hope that the qualities that make men and women, the qualities that the rural community and the nations are needing, would begin to be fostered. Instead we are content with handfuls of loose sand.

Hitler knows better than that, and Stalin and Mussolini. These men have their minds made up about the kind of men and women they want, the kind of men and women needed for the community they are seeking to establish. We do not share their ideals. Ours are higher—for we are seeking a nation of free men and women. But we would do well to learn it, not from their methods, yet from the attention they give to this matter. They have seen—and we ought to see—that if the community of the future is to be what we wish it to be, it can only be if the schools and educational institutions are working towards that end.

Bengal's educational system, so called, has been accused of emasculating people. That is a true charge if it means that men, men of vigorous character, are not being developed as they ought to be. Certainly they are not from the village schools. Nor could they be. For a man *is* a man in so far as he is rich in helpful relations to others. Work for the individual indeed ; but an individual *is* an individual of any value only if he is one in a live community, otherwise he is but one speck of sand alongside of others.

I believe that much can be done to remedy this in the school by a little simple organisation. We are recommending and using for some of our schools a system copied from the Scouts and Cubs. The teacher of a single teacher school divides his pupils into four groups, each under a leader. The groups do not correspond to classes, for each group has boys and girls of different ages and sizes ; and each selects a name, generally that of an animal. On a given signal—e.g. the sound of a whistle—they form themselves up in their groups and in this way, the whole of the little school is ready for any combined activity. The advantages of this from the teacher's point of view are very obvious. All the activities and lessons for which the pupils of all the classes combine, their drill and games, their singing, their lessons in hygiene, their stories, and much more, all are arranged in groups, and work is thus ever so much more rapid and efficient. But an equally important advantage is that every pupil has his place. He is not a lost soul, a speck of sand, but a unit in

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the miniature body-politic, learning to play his part in the school activities. Thus it becomes easy for even small children to co-operate in cleaning their own class-room, organising their own gardens, or in doing any of the many things that they ought to be doing in a village school.

I believe that some such organisation is a fundamental necessity if the village school work is to be improved.

Pass on from the individual village school and consider the system in which each school is but one unit. Time was, we are told, when each village was a well organised community and the educational work too had its place in the organisation. But the system has broken down. The village *mondol* and *panchayat* no longer hold sway. The old system has gone and no one can bring it back.

Yes, it is gone, rest its bones. The motor bus, reeling along the District Board road in clouds of dust, is a harbinger of a different age. The village can no longer be the separate self-contained unit that it once was. The broad line dividing the rural life and community, what people sometimes called "the interior", from the towns and the non-agricultural industries, though it will still be real will be neither so wide, so straight or so continuous. Already the whole country is a community in a more real sense than it used to be.

But what of the village schools? Here one and there another bound together only by the fact that each gets grants—occasionally—or hopes to get them, from the same source, and each stands or falls by the favour or fiat of the same occasional inspector. Handfuls of loose sand. Does the village teacher feel himself a member of a great profession, a worker in a great cause, linked up with others all over the province? He is an isolated and largely neglected unit, a potential cell in the body-politic but with almost no connecting nerves. He has generally no *esprit de corps*. Very often he has taken up this ill-paid work not because he enjoys it—but as the only way to make a few rupees in the month. The inspector, with far too many schools to look after, brings him little or no inspiration. If there are other schools in the village or neighbourhood they are enemies, rivals for each pupil who can pay a few pice in the month. Well might the school repeat what Mathew Arnold wrote in another connection :

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"Dotting the shoreless watery wild
We mortal millions live, alone."

I am convinced that here lies our most radical weakness and therefore the indication of the remedy.

Can this state of things not be remedied? We have already our organisation of inspectors and circles. Could that be used to link the schools and teachers together into something more like a living organism? Surely it could, if that objective were adopted and planned for.

For example, it would be quite possible to arrange for regular "refresher courses" or short "schools" or "institutes" for all the primary school teachers in a given area. The practical difficulties do not seem to be insuperable and the expense should be small in comparison with the possible gains. Such institutes or refresher courses, if arranged not spasmodically but regularly, and not as a recreation merely, but as an integral part of the teachers' work, might fulfil at least three functions :

- (a) They would give the teachers a real inspiration, bring them into touch with their own colleagues and with men and women of gifts in their own profession, and thus do much to develop a new *esprit de corps*.
- (b) They would provide a continuous education for the teachers, a training in service, and would thereby set the objectives for the teachers' work in the interval until the next course.
- (c) They would enable the inspectors to keep in better touch with their schools, and the time of the course could be used to do a certain amount of work (e.g. collecting of returns etc.) that is otherwise done through the post.

These courses would have to be planned along sound educational lines, avoiding too much talking, and providing the teachers in attendance with regular work to do. If not, in the hands of some men at least, they might become just a series of speeches, floods of oratory and advice poured out upon the suffering teachers. That would be fatal.

The work of the courses would have to be carefully chosen and have to be such as would give the teachers common lines of progress to work along in the next intervening period. E.g., if it were planned to have a new course in

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drill and games for primary school children, teachers would get instruction about it at such a course and would be required to practise it themselves there. Then it would be the business of the inspectors to follow this up, seeing this work put through in the schools during the intervening period. Then, at the next course, reports would be received and some new work set on foot for the next period.

But this matter of 'refresher' courses or 'institutes' is only one of the ways in which something could be done to bring the teachers and schools together into a living and efficient organism.

All this will of course, be futile unless we can get better men, far better, men, into village school work. There are plenty of educated young men in Bengal ; there is plenty of idealism and vague desire to make sacrifices for the motherland, and there is plenty of talk about the villages and "rural reconstruction". The Guru Training schools are now getting men with a far better previous education. Has the time not come to plan and work for a quite different type of village teacher, with better education and ability and with a training fitting him to lead and serve the village people?

Rural re-construction is a mere phrase and will be nothing but a dangerous day dream without *men* who are out to live lives of service. Here I believe the teacher is one of the pivotal men, if the right men can be chosen and trained. Let me make one or two practical suggestions with regard to this.

We need to take more care in selecting the right men, those who can be found, for this village teaching work. It is not enough that a man can pass an examination in Bengali and other school subjects. We need to know before he begins his training whether he has the qualities of character and personality necessary for the difficult work of a village teacher. I am convinced that the training cannot turn the wrong man into the right man. It cannot produce, though it can develop, the right qualities and character in a teacher. In our Training School at Hat Chapra, we now send out to all those responsible for sending candidates, a questionnaire, planned to bring out what kind of man the candidate is. For myself, as a Christian and a missionary, I am concerned to know that candidate has a real religious life in him. And we are all concerned to know, not only whether he is free from vices, but whether he has already taken any lead in village life, whether he has worked with village children

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successfully, and whether he enjoys teaching them. These and several other questions need to be investigated before we are justified in admitting this man into the vestibule of the teaching profession.

Then further we need to know whether it is likely that he will teach in a village school. We have frequent applications for admission to training as teachers from young men who, we have reason to believe, will never settle down to village school work and who are applying simply because they see a hope of a regular stipend for the period of training. Only the other day a typical case of this kind cropped up, a young man, failed-matriculate, who came to my colleague asking his help to get into the railway workshops, and who, it was discovered, holds a G. T. certificate, but has no intention of attempting school work.

We should probably all agree that candidates for training should be preferred who can show that they have a school or a post awaiting them on completion of their training or who are selected and sent for training by some village or community which desires their services.

Now let me only call your attention to two important points in regard to the actual training of the village teacher.

(A) *Our course of training for village teachers requires to be substantially changed so as to make it a really professional course.* Still nearly $\frac{3}{4}$ ths of the marks obtainable in the final G. T. examination are given for knowledge of school subjects, and only approximately one fourth for knowledge and practical efficiency in the theory and art of teaching. There was some justification for this when the G. T. course was taken by men who had not passed even Middle English. But now, when all have passed that standard, and many have gone on to Matriculation, the time is surely ripe for making this course a predominantly professional one.

In this connection it is worth while to remind ourselves that the school work of a village teacher is largely concerned with quite small children and teachers require far more training to enable them to deal with these. We hope that the time will come when a much larger number of bigger pupils will be found in the village school but that is not so at present, nor is it going to be so, unless and until the teacher can do far better work with the beginners.

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I have in mind a village school, where there are 50 children in the so-called "infant" class. I saw them in their class-room,—a seething mass of uncontrolled, unorganised, little humans. That they were learning almost nothing was obvious, and was proved by the fact that in the next higher class, class I, there were only two children. Evidently only two had been able to emerge out of the chaos in the previous year.

I remember asking an experienced village primary school teacher to let me see him take the beginners in arithmetic. He just looked foolish and did all he could for a good few minutes to stave off having to confess that he just didn't know what to do with them.

I recently investigated the admission book of a fairly average village school, by no means one of the worst. I found that of the pupils who had been promoted out of the infant class into class I, not one had been less than 4 years in school. It is taking children in that school four years or more to get an elementary acquaintance with the alphabet and simple words.

It is obvious of course, that women teachers are needed for these schools, and we cannot hope for the right kind of work till they can be employed. But that seems at present merely a dream of the far distance. Meantime we ought to see to it that the village teacher is qualified in the best modern methods of teaching the beginners. If he cannot do that, he will fail.

It is worth adding here that the Bengali man is, in my opinion, much more likely to succeed in teaching small children than the Britisher. The Bengali man likes small children, and can be trained to play with them and teach them in a way that one could hardly hope for from the British male teacher.

(B) *It is more than doubtful whether a man can be trained for village life and work except in a village environment.* Such an environment is not obtained simply by planting small training schools in isolated places. But it is hard to see how the love for nature, the acquaintance with village life and the study of its problems, the habits of service to the village people and the development of methods of such service, how these and other things called for in a village teacher can be developed except in continual life contact with village life.

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It seems to me that we cannot teach people to swim if they have not sufficient contact with water. We cannot train men for the functions that a village teacher must fulfil if he cannot practice these functions in village life.

Why should we not aim at making each Guru Training school a small centre for rural service? These bands of young men, whose lives, if their training is successful, are to be spent in the villages, could, under the right leaders, do an inestimable amount of good. But the actual good they could do would be insignificant in comparison to the benefit that would accrue to the province if they were thus led to work in their own villages after they passed out.

There are numerous kinds of rural service in which such groups could take a part, with immeasurable advantage to themselves and the villagers. I speak from our own experience when I say that they would be cordially welcomed if they went to teach spare time occupations to the cultivators or to show them lantern slides. They could start sub-packs, or play-groups, amongst the children. They could take an interest in health work, agricultural improvement, the development of vegetable and flower gardens, the progress of co-operative banks and other matters vital to the progress of the village.

Along with this it would be desirable in the training schools to have a certain amount of class study of village conditions. Students would study the village and its problems and any practical solutions of these. We have had such a class in our Training School for some years, and the Government have had our students examined in this subject—Village Welfare—in the final G. T. examination.

One further point must be mentioned. A part of our practice teaching work should be done in a real village school under the ordinary conditions. We have found it desirable to send out students out for three weeks to do carefully graded and supervised work in a village school. This has given them more real help in 21 days than they otherwise get in 5 months.

Mr. Brayne said that the future of the village is in the hands of the village teacher, and thus, in one sense, the future of the country is in his hands. Few things are of great importance than making him and his work efficient.

RURAL EDUCATION

By Prem Chand Lal, Ph. D., of Viswa Bharati.

We have gathered here this morning to discuss one of the most pressing problems with which we are faced in the building up or rather re-building up of our villages and with it the life of the whole country, for being predominantly a rural country, the well-being and prosperity of the country depends largely upon the education of the masses of people dwelling in villages.

It is our duty, therefore, as educators to ask ourselves what exactly we want to achieve through education. Unfortunately it is too common an experience in our country to find teachers who have little idea of why they are teaching, what they are teaching, and still less of what they should be teaching, since they must teach. Ancient Greece and Rome, we know, had their different purposes in education which were more or less expressed in their different cultures. We know the purposes that fashions the spirit of the Public Schools in England, of the Post-War school in Russia, or schools in Germany, Italy and the United States. But if we were asked what the purpose of education is in India, we could only say, that once, long, long ago, it was 'Awakening'—Awakening in the largest sense of the term, though to-day it seems to be the perpetuation of ignorance. This is true of India in general, though here and there we have thinkers and idealists trying to re-instate the noble purpose of our ancient education, the most notable and so far the most effective among them has been Rabindranath Tagore who has devoted the best part of his life to prove the purpose of education in awakening the human mind to all its varied creative possibilities.

But if 'Awakening' is not to remain a mere term of spiritual appeal, it must be expressed and defined in particular terms appropriate to the immediate needs of the class of people to be educated. So, while 'Awakening' in its widest sense is going to be our main aim, there are other particular and more concrete aims that we have to have according to which we have to fashion our system of education. Since in this paper we are concerned chiefly with rural education, some of its objective may be mentioned here. In general, the aim

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of rural education should be to help rural children to live more satisfying and effective lives in their villages. In particular, the aims of rural education should be :—

1. To help village children to appreciate rural life.
2. To help them to learn from their own environment with fuller and better understanding.
3. To help them to become better farmers, better labourers and better craftsmen.
4. To help them to acquire better attitudes toward their fellow-villagers.
5. To help them to acquire better health and social habits.
6. To help them develop their physique and fight the diseases that are a menace to rural communities.
7. To help them to become better citizens of their villages and of their country.
8. To help them to acquire the three R's not merely as means of helping them in their daily lives, but for enabling them to read books and be thus introduced to the wider world and to the mysteries of nature.

The means by which we may achieve these objectives may be listed as follows :—

1. By providing a curriculum that will meet all these requirements.
2. By providing trained and suitable teachers.
3. By providing for the education of parents and securing their co-operation.
4. By putting up suitable school houses with space for garden and play-ground.
5. By providing for the education of girls and preparing them to become better house-keepers, home-makers and mothers.
6. By providing recreational facilities, both for the children as well as for adults.
7. By creating a separate branch of rural education under the Director of Public Instruction.

Let us now discuss all these points one by one as briefly as possible. First of all the curriculum has to be built round the needs of the rural children, making use of their environment, so that the results of the school may be seen in the influence it may have in the re-building of the village life in all its different aspects. The curriculum at the same time, has to be based upon the child's interests and experience and not upon those of adults. While not leaving out the three R's greater stress has to be laid upon health habits and attitudes. Certain habits are formed very early in life and have great influence in the formation of character. At a later age, the children have to be explained the why's of these habits, so that they may acquire them with understanding, and not merely as something imposed upon them and which may become unpleasant and disagreeable, and therefore given up as soon as the children are out of school. Why they should bathe properly, wash their faces and clean their teeth, hands and nails, keep their school house and its surroundings clean. Not merely habits but a conscience has to be developed which would not tolerate anything unclean or unhealthy.

In the same manner, attitudes have to be developed very early in life. Attitudes toward members of their own families, toward people of their own castes and toward people living in their respective quarters and toward others who may belong to other castes and classes, and toward fellow-villagers irrespective of caste or class. We all feel that our social order needs drastic changes and efforts are being made all over the country to bring about a happy relationship among the people of different castes and communities. But the work has to be begun at the very bottom. We have to start with the youngest child in the school and help him to acquire proper attitudes. Complexes of superiority and inferiority, of differences in religion and race have to be adjusted and they can only be done if we begin the work in our primary schools.

The curriculum has also to provide for an appreciation of rural life and rural environment which is much more healthy than the urban environment. Not only an appreciation, but a full use has to be made of this environment. In fact, all our teaching can be done by means of the nature around us. For instance, instead of teaching arithmetic by means of the old traditional methods, if we utilize the rural resources such as crops and their prices, farm labour and rural industries debts etc, the children will learn not only from their own

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every day experience, but something that will always be useful to them in their lives.

Teachers : Our activity curriculum based upon the needs, interests and capacities of the rural children, cannot be given effect to with any appreciable success unless we have suitable and properly trained teachers, teachers who are not merely trained in the profession, but who love children and their work, and who know the needs of village children. The ignorance of teachers in the fundamental needs of life is very aptly described in the following lines :

“Greeting his pupils, the master asked :

What would you learn of me?

And the reply came :

How shall we care for our bodies?

How shall we rear our children?

How shall we work together?

How shall we live with our fellowmen?

How shall we play?

For what ends shall we live?...

And the teacher pondered these words, and sorrow was in his heart,
for his own learning touched not these things.”

In order to be really successful teachers they must love their work, even though it may not bring them much remuneration. They should be able to say with all their hearts the following lines written by Professor William Lyon Phelps :

I LOVE TO TEACH

“I do not know that I could make entirely clear to an outsider the pleasure I have in teaching. I had rather earn my living by teaching than in any other way. In my mind, teaching is not merely a life work, a profession, an occupation, a struggle, it is a passion. I love to teach.

“I love to teach as a painter loves to paint, as a musician loves to play, as a singer loves to sing, as a strong man rejoices to run a race. Teaching is an art—an art so great and so difficult to master that a man or woman can spend a long life at it without realizing much more than his limitations and mistakes, and his distance from the ideal.

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"But the main aim of my happy days has been to become a good teacher, just as every architect wishes to be a good architect and every professional poet strives toward perfection.

Modern educators will agree that the existing system of the training of our village school teachers does not adequately meet our requirements, at least not the requirements mentioned in this paper, and unless our training institutions are staffed with teachers who themselves have the knowledge of all these things and are not only teachers in the real sense of the word but also inspirers of men, we cannot expect any improvement. In addition, refresher courses not only in every district, but in every thana ought to be arranged and a staff of qualified peripatetic instructors be kept to go round and conduct these courses. The Sub-Inspectors of schools in the rural areas should be given special training in rural education, and provision should be made at the Training Colleges for such a training.

Education of Parents. Children are at school only for a few hours of the day, and therefore, no matter how educative an influence a school may wield, the home and other outside forces do have an equal and in many cases a greater influence upon the children. These forces often undo what the school and other agencies that are responsible for the education of a child have done, and unless there is a close co-operation between the two, the school alone cannot be expected to show successful results. The village school teacher should consider himself a whole-time worker. He must consider his duty to look after the education of the parents as well, not necessarily teaching them the three R's, but making them understand the real significance of education, telling them about the work of the school, what is done there and for what purpose, and that its success depended upon their co-operation and help. When the parents will see that their children are better behaved, are acquiring good habits, are helping them in their house-hold duties, are keeping their homes and their surroundings clean, they will realize the real value of education and come forward with their assistance. Parents ought to be frequently invited to the school and shown the work of their children. School functions should be frequently arranged to which the whole village may be invited. In these, ways, the school can become a centre of village life and its activities.

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School House . It is known to all of us what kind of school houses we have in our villages, and we know equally well what healthy and educative influence a well ventilated and neatly kept school house can have upon the children and upon the villagers. Children by nature are fond of beautiful things, but we make them accustomed to dirty and ugly surroundings. We do not need any elaborate building for our school, but a modest structure which would be the model house in the village as far as cleanliness and beauty are concerned. If the school house is used only for three or four hours in the day, we can hardly expect it to be kept proper and have its surroundings beautified. It is only when it becomes the children's own house, its garden a work of their own creation, that it will be cared for and kept properly. The public funds are limited, but if the villagers co-operate and contribute their share, it will not be very difficult to find the rest. There are hundreds of buildings for Secondary Schools, Colleges and Universities put up and even endowed by our philanthropists in memory of their loved ones,—buildings which are really monuments and worthy of the names of such benevolent and generous donors ; but there are hardly any Village Primary Schools which have been thus erected and endowed. These village primary schools through which alone can we expect the awakening of the teeming millions of our country can also claim at least a portion of the generosity of our philanthropist. The cost of maintaining a High School or a College will suffice for hundreds of village schools catering for the needs of thousands of poor village children even though their needs may be of a primary and elementary standard.

Education of Girls : The education of village girls is a problem by itself and is being treated in a separated symposium. The progress of a nation largely depends upon the education of its women. Whether or not the education of our girls as given in High Schools and Colleges meets their needs is outside the scope of this paper. We have only to concern ourselves with the education of our village girl. It is safe to say that hundred per cent of our village girls become housewives by the time they reach their fourteenth year, and quite a number even earlier, and although I have not the figures, a good number of them are left widows while yet at a tender age. House-keeping which includes home economics in all its different branches, taking care of infants, sewing simple garments and how to make the house a clean and healthy

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place to live, are some of the things our village girls have to be taught. Here also, as in the case of boys, we have to base our education according to the needs of the girls. While we need a general awakening in the male population of our rural areas, what is much more needed is the awakening of the village women. They are more conservative, more ignorant and more superstitious, and yet they are the people who help to mould the character of the future generations of our country. But the problem of girls' education is not quite so easy as some people are inclined to think. The first problem is that of finding suitable teachers who will go out and live in the villages (not their own). It is a problem which I am afraid, will remain unsolved for a long time to come. The best that can be done at present, is to find some widow in the village and give her the necessary training. She will find not only an interest in life, but also means of an independent livelihood. Those who are acquainted with the condition of widows in the villages, know how hard and unfortunate is their lot. Through the efforts of some of the organizations some of these widows are being given training in various professions, but their number is extremely small and the work seems microscopic when we look at the thousands who are living in remote villages and not easy to be reached.

The conservatism of the people is being rapidly broken down through sheer economic reasons, and we find people of all castes and classes interested in the education of their girls. The time is ripe when the question should receive greater attention of our country-men and of the Government. Being so late in this field, we are in a fortunate position, in that we can learn from the experience of others.

Recreational Facilities : In the programme of village schools, provision must be made for recreation which is sorely lacking in the life of our villages. Recreation had its place even among the primitive people. Villagers do not spend all their time in activities which are related to the maintenance of life, and the Indian villager has more time at his disposal than is good for him. It is during periods of leisure that all the folk songs, stories, games, dances, festivals and ceremonials have sprung. There is a very close relation between leisure and education, and we can combine the two with advantage to both. The hours that are wasted in idleness and gossip in our villages, if spent in healthy recreational activities, will not only bring joy in the hearts of the

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people and improve their economic condition, but will remove a lot of evil that exists in our rural societies.

Recreation should never be regarded as a matter of duty, it should never be imposed upon the children through compulsion. If we do that it loses its whole value. It has to be voluntary, as a voluntary impulse coming from within. Recreational activities have to be of various kinds to suit the tastes of different people and different types of children, although a number of them can be common to all. We have first to provide suitable games, for it is in the nature of all children to play. It is a rare sight in our villages to see all the children engaged in play.

The play-life is practically absent from their childhood days. As compared with the city children, the village children put on a serious look at an earlier age, and thus become old while still young in age. A person who has his recreational life, always keeps young. Mention may be made of some of the recreational activities that can be introduced in the villages :

Games of different kinds.

Excursions to places of interest.

Story telling and newspaper reading.

Dramas and Music.

Keeping of hobbies of different kinds, such as making collections of different varieties of paddy, of seeds, of different kinds of soils, stones, wood, leaves, and herbs and a host of other things found in and round the villages.

Studying the habits of birds and animals round them.

Making of maps of houses and of villages.

Cleaning the jungles, kerosining pits and filling them up.

We can tell about the character of a person from the hobbies he keeps and from the way he spends his leisure. Our recreational activities should be such as will form our character, and provide us with means by which to spend our time in the best way possible.

Administration and Organization : If we think that the problem of village education is so important in the development of the economic, moral and intellectual life of the country, and are sincere in giving it proper attention, its administration ought to rest with the Central Government and not delegated to

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district boards and local authorities. In plain language, it should not be thrown at the mercy of some of the ignorant members of the district school board committees, and to some of the politicians who seek their own interest and have little or no interest in the education of the masses. It may be desirable to appoint an Assistant Director whose sole business will be to see to the interests of rural education and place them before the Director of Public Instruction for his personal attention.

While public interest is greatly needed, under the circumstances we find to our deep regret that people are more interested in Secondary and Higher education, so that when the time of appropriation comes, there is hardly any one to speak up for the cause of rural education.

There are yet several other phases of rural education which have not been discussed in this paper. I would like to mention only one and that is about Technical Education. Since more than 99% of our village children find their livelihood from agricultural and allied pursuits, and from rural industries, we should provide for such professional education in some of the selected villages where the young village boys may receive the necessary training in their respective professions, and thereby become better farmers and better craftsmen and better citizens not only of their villages but of this great country.

A Lecture delivered by MR. GIRIJA BHUSAN MUKHERJI, Secretary,
Bodhana Samity, Calcutta.

Mr. President, ladies, brother delegates and Gentlemen,

This is a matter of unique honour and privilege for me to address you to-day on a subject which is perhaps discussed in an assembly like this for the first time in India. I am deeply grateful to our Hon'ble Education Minister, Khan Bahadur M. Azizul Haque for having allowed me this golden opportunity to speak on this vitally important subject to an assembly consisting of educationists hailing from all parts of this province and even beyond it. It was he who very kindly asked me to have a stall of my institution amongst others representing about 1200 institutions of Bengal. There is certainly a Hand that guides, and I am sure the Hon'ble Education Minister has felt some touch of that Hand when he requested me to enter into the Education Week on behalf of my institution which is the first one of its kind in India.

Gentlemen, the unremitting attempts of this busy world of ours have been to make life as happy as possible. The modern world is fast driving to a condition that is much too dynamic to be lived in by persons whose level of intelligence is not on a par with their normal compeers. We are moving on and on, and it seems that we are gradually bursting ! Science is making out our way to a better and happier life. The art of healing is being pursued by ceaseless attempts to get at truths of ever increasing efficacy.

Engineers are building up sky scrappers ; and in New York the highest building measures 1200 ft. Human endeavours are making it possible for us to have access into regions we have hitherto thought to be the monopoly of God. The driving force behind all these attempts is *Intelligence*.

Do we ever care to realise that we are carrying amongst ourselves a world of persons who are *misfits* on account of their *insufficiency* or *want* of intelligence? Do we know that these persons do not or cannot move with us in our daily world, and that we have to *carry* these persons with us all the length? Do we know that these persons are responsible not only for failure of public causes or failures in public causes, but also on account of their inability to

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encounter the complexities of life, they yield readily to vile suggestions and inducements and thereby swell the ranks of incorrigible criminals and prostitutes? Do we know that by our unsympathetic and inhuman treatment and neglect of these persons we drive them to develop anti-social tendencies of the worst order.

It has been my experience in running the Bodhana, an institution for these persons, for the last 3 years that "Feeble-minded" is a subject which is very little understood in our country. The confusion between "feeble-mindedness" "insanity" and "deaf mutism" is very prevalent in our country. Even amongst the highly educated persons, the basic ground of difference between these 3 conditions is very often confused, and to make the subject clear, it is better that at the outset we make out the distinction. The "deaf-mutes" are persons who are dumb because they do not hear, but otherwise have normal brains with normal intelligence, subject only of course to the handicap of the want of stimuli from a definite organ viz., the organ of hearing, and their special treatment lies in developing their powers of speech. The "insane" are persons who have lost balance of their mind in various degrees for various reasons. They are called technically "dement". They require special treatment in lunatic asylums for their aberration of intellect. "The feeble-minded" generally so called, are persons who, though endowed with all the organs of senses, are deprived in different degrees of that most priceless of all precious gifts that man has received from Providence, that is Intelligence. These are called "amens". Being thus deprived of the main driving force which gave to humanity its proper place in the world, the feeble-minded are necessarily the most unfortunate persons in existence. These are generally divided into 3 grades :—

(1) *The Moron*—One who can communicate orally and in writing with his fellows, but cannot compete with the normal compeers of his age on account of backwardness of intelligence, and is best described as a "Social Inefficient". In a Moron the brain cell development ceases somewhere in childhood.

(2) *The Imbecile*—One who cannot communicate in writing with his fellows i.e. who cannot either read or write on account of want of a proper intelligence only and is best described as a "Social

Misfit". He can do simple jobs under close supervision, but he cannot do any work independently from its start to the finish, or complete any work which can contribute to his own support. Speaking generally, the brain growth in the imbecile is arrested shortly after birth, or possibly during the years of normal infancy.

(3) *The Idiot*—One who can neither express his thoughts in words, nor understand thoughts thus expressed, solely on account of want of intellect. In the idiot the brain growth and the nerve development are arrested either just before or soon after birth. An idiot is usually speechless, helpless and hopeless.

Generally speaking the characteristics of a feeble-minded person is summarised as follows :—

- (1) He *cannot* defend himself in danger. This inability varies with the degree of idiocy.
- (2) He does not know the world around him, nor his own position in relation to the people with whom he has to deal.
- (3) He has a typical "Inferiority Complex" which is deepened by the short sighted and often selfish treatment that he receives from our normal society.
- (4) He has very little or insufficient *judgment* of his own. Therefore, he has always to be *led* i.e. he requires *pulling* by others for want of his own *pushing* power.

It may be useful for the enlightenment of the parents or the public of our country, as also of my friends, who are in the teaching profession, to discuss herein a little more technically the pathological details regarding feeble-mindedness.

Mind, as properly understood, is essentially a function of the activity of the *brain cells*, or rather a definite and important resultant of the activity of such cells when their anatomical and physiological integration has reached a certain level of complexity. *Intelligence* is a matter of sufficiency of normal healthy brain cells correctly *linked together* into chains and arcs. *Education*, on the other hand, is largely a question of *environment*, and of suitable oppor-

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tunities for the development of the brain cells possessed. In the words of Dr. William J. Cooper—

"Human education is a process of individual growth and development, beginning with the birth and ending only with death, requiring at the outset *much effort on the part of others*, in discovering, nourishing and directing the inherent potentialities, but at every stage demand an increasing *self-reliance and self-control*."

One of the functions of the nervous system is to convey stimuli from the various sense organs of the body to the central co-ordinating or head ganglion from which they emerge sooner or later in the form of motion, or *re-action to the environment*. The Microscopic physical instrument by which this is done is the *Neuronic Arc*, and this arc is the unit of the nervous system of all vertebrate animals, including man. This *neuronic linkage*, therefore, is the foundation of the mind. The simpler the function to be performed, the simpler is the neuronic arc or linkage, and the more complex the function, the more complex are the structural elements concerned. The abnormality of the feeble-minded, therefore, is nothing but the inefficiency, insufficiency or want of this neuronic *linkage*, according to the degree of feeble-mindedness.

The *Idiots* are treated most badly as animals, or even worse than that in our country. We feel their existence in our society on account of their inherent inability to negotiate with the normal activities of our life. We recognise their existence by only avoiding them as far as possible from our activities, and beyond the pinch, which the individual parents concerned feel for such a child, not even one throb of our brain we have hitherto spent for the cause of such a child. It is not necessary to discuss at length the features, the other characteristics and difficulties which these children have.

The *Imbeciles* are taken in as the usual members of our society subject to all the handicaps, hindrances and the risks. It is with these persons that our society always feels the greatest burden of *pulling* this population at a great cost to the normal activities and interests of our society. Not un-often, rather generally, we marry these persons, both male and female, because we generally believe that they *might improve by marriage*. Our personal experience is that even highly educated persons, or those placed very high in our society,

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have not hesitated to marry the imbecile girls because thereby they think they can *solve the question* of putting them in charge of the husbands who can carry them safely. The ultimate effect of such an inexcusable foolishness they never stop to consider, and the society is burdened all the more by multiplying by propagation of their number in alarming proportions.

The Morons are persons who enter our society as normal people, and become a trouble to the parents and to the teachers only when they gradually show themselves to be incompetent enough to compete with their normal compatriots in schools. These are children who take their start along with the normal section quite undetected. Their presence and existence is felt only when they have made some little progress in the school, and fail to make *any more*, and do not profit by their education in normal schools beyond a certain stage. Many a parent have, as a result of despair and hopelessness, ruined the lives of their children who really belong to this grade, because in their opinion they are *failures* for some inherent obstinacy and perversity in them. They think that these children fail only because they do not do *their part of the labour*, and hammering is resorted to by both the parents at home and the teachers at schools as a remedy. The only inevitable result of such a treatment is that they are left in a much worse position than what they should have been in without that hammering.

The Moron in his family life is "ignored", "neglected", "misappreciated", "misunderstood" and in short, we *do not know him*. We think that *he* is wronging us but we never realise that the position is just the opposite. Our expectation about his performances is based on our want of knowledge of *his* limitations or want of a proper understanding of *his* handicaps and failures, and in not getting into the real state of his mind with its limited abilities. The standard of our expectation is a normal standard, and his failure to come up to that standard is interpreted and judged by us as so much *trouble* that *he* is giving us.

The same position he enjoys in the world outside the precincts of his family life. His failures lead to ridicule, and he finds that he is the laughing stock for the rest. As he grows, the situation becomes still worse. His own people at the house, who have been trying to be as loving and considerate

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to him as possible, gradually develop a sense of despair at the helplessness of the situation, and become irritated, unnecessarily force him into greater isolation and he becomes a 'marked child'.

In this way the only chance left to him, with his limited powers of mind and ability, to be a *social unit* is lost, and he is driven to be an *anti-social* unit by the maltreatments and unsympathetic attitude of the society which gradually comes to treat him as an undesirable element. It is this grade of the feeble-minded viz., the Morons, who present the greatest risks to our society. They enter into the society, as I have stated above, quite undetected, and by virtue of their family connections, or hereditary wealth or for diverse other reasons they are allowed not unoften to hold public offices, and they are entrusted with works of various responsibilities. The result is a miserable failure not only of public causes but also of their failures *in* public causes. The highest interests of the society, therefore, demand that these Morons should be segregated as early as possible, and given a special treatment in an institution with special environments suited to them.

I may also mention here, and this will certainly be endorsed by my friends in the teaching profession, that the presence of a Moron or a feeble-minded in a class to a very great extent damages the interests of the normal children of that class. In other words, the presence of these feeble-minded children along with the normal ones, endangers the welfare and the progress of the normal section of our children.

Apart from the deficiency of Intelligence in the Moron, there is also to a marked extent the risk of a number of this section developing *moral imbecility* for very palpable reasons. Being of a low type of intelligence, his judgment is necessarily low, and therefore, he finds it difficult to distinguish the right from the wrong, or the good from the bad. The result is that he yields very easily to suggestions and temptations offered to him by designing persons who only serve their own ends at the cost of these simpletons.

Terman has said "That every feeble-minded woman is a potential prostitute would hardly be disputed by any one. Moral judgment, like business judgment, social judgment or any other kind of higher thought process, is a function of Intelligence. An adult body with its *instincts* is bound to be *delinquent* in some form or other if his intelligence is not fully developed and

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has weak inhibitory powers like that of a child." Terman in his book "The measurement of Intelligence" (1932 page 12) estimates that the cost of vice and crime in the U. S. A. alone amounts to about \$500,000,000, per year. It may be startling enough for my audience to know that "The Intelligence tests," recently carried out in the States of America, have shown that about 60 to 97 per cent. of the girls, committed to prison for immorality, are feeble-minded.

Those who work with the criminal juvenile delinquents, truants, tramps, paupers and the homeless, the delinquents, drug-habitués, the inefficients and the deficients will find that mental deficiency is mostly at the root of all these persons. With the spreading of industrial life in India, and with the growth in the number of mills and factories which are multiplying all over the country, it is a matter of common experience that these mental deficient increase the number of industrial accidents, decrease correspondingly the efficiency of work in factories, shops and mills and public offices too. These persons always lower the standard of life, and raise the cost of supervision, and add also to the number of the unemployed who want to live at the cost of the earnings of others.

There are so many aspects of this problem of feeble-minded that it is not possible to discuss them all within the limited time at my disposal. I will only now deal with the very essential aspects which I want my countrymen, specially those assembled here, to take up immediately.

It is the greatest misfortune of India that no attempt has hitherto been made either by the State, or by the public, to make a special census so as to ascertain the exact number of the feeble-minded in India. In England, the Wood Committee, in 1928, found that 8 per 1000 are feeble-minded. It is equally unfortunate that up till now there has not been made any attempt to apply the mental tests to the schools all over India, with the special purpose of sifting out this section from the normal, although we are told that the Government of India, including the Provincial Governments are spending over crores of rupees every year to meet the costs of the Education Departments under their control. In all the attempts of our society dealing with education we lose sight altogether of the menace to which the society and the nation is exposed, viz., of the whole race degenerating as a result of these feeble-

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minded persons, specially the Morons, entering into the life of our society so undetected and committing all the havoc they are doing. I wish I could cry from the house tops a trumpet call of warning to all lovers of India, including the politicians, the educationists, the legislators, judges, lawyers, the parents and the doctors, the psychiatrists and in short the entire public of my country so that they may open up their eyes to this most important and vital aspect of the problem which has hitherto been neglected with an amount of callousness that is staggering.

The question naturally suggests what is the remedy? How to deal with these children? Is there any use spending any money after these persons etc? The inevitable unsympathetic treatment they receive in the hands of our society lead to the results I have already mentioned, viz., developing social tendencies of the worst order and swelling the number of incorrigible criminals and prostitutes. Just imagine if all these unfavourable conditions, unsympathetic and cruel treatments are removed, and the feeble-minded is put in an environment in which his handicap casts no shadow, and he gets an appreciation for whatever little he does or is able to do, an environment in which he gets a love that is prepared to take him *as he is*, and that makes up the shortage of all his abilities and attainments by a spirit of understanding and service, what the effect would be in the development of such a child into manhood. With such an environment the child immediately enters into the life of a special community, every part of which is planned to recognise his short-comings, to meet his needs and to suit his mental age and temperament. Here he finds again that amongst his companions he can become a leader himself. The results achieved by such an environment is *confidence*, and such a confidence, coupled with the possibilities of leadership that he might attain, develops *ambition*. Once this stage of ambition is reached the child looks for other attainments to achieve, and he becomes a leader in his little world where no demands are made of him beyond his capacities. In such an environment and work the time of the staff who have to deal with him is not merely to be absorbed with the task of their mere custody, but will also be extended towards making complete study of his handicaps and abilities, knowing his short-comings and also making ever increasing attempts to know and understand him better.

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This is undoubtedly the work of a special institution, and not of our ordinary educationists who deal with the normal children. In the interests of both, and in the supreme interests of the nation, each work must be carried on by itself, and with no connection between the two.

My present appeal to all my brother delegates, and other educationists assembled here is :

- (a) To arrange for sifting out the feeble-minded from the normal children by mental tests, and to refer the parents of such unfortunates to the *Bodhana Samiti* of which I shall speak presently. If the educational authorities, not only of this province but also of other provinces and the native States, the Educational Commissioner of the Government of India as also the educational heads of the other provinces, do direct that the application of mental tests in the schools all over India should be compulsory, and that the admission of all pupils in the normal schools should pass through such a test, and such tests are applied, I can predict, with a good deal of certainty and hope, that appalling figures will be arrived at, and our eyes will be opened to the enormousness of our task ahead in dealing with the problem concerned.
- (b) I appeal to the Government of India, through the Hon'ble Education Minister of my province, to order a special census to be made for the ascertainment of the exact number of the feeble-minded in India. It is really one of the blackest spots on the administration of India that hitherto no attempt has yet been made for such an ascertainment. Will the Government of India kindly take up the matter, and will my countrymen take up this problem and approach the Government of India for this purpose?
- (c) I also ask the Government of India to have a special legislation in India on the lines of the English Mental Deficiency Act so that in a country like India, we may leave the matter more to law than to the common sense of the public at large. It has been my experience that the attitude of the public in India with the

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feeble-minded is not only callous but sometime inhuman. The attitude of the parents of such children is equally staggering, and they never know the value of an institutional care of these children nor do they know the effect of environment on them. Apart from the question of heredity, the influence and importance of environment is very little understood in our country. It is for the Government of India to take the matter up, and to pass a special legislation on the lines of the English Mental Deficiency Act. Legislation is necessary to give a definite shape and authority to the methods of encountering this problem, and the sanction of the law would undoubtedly give additional and the most effective strength to all the attempts of educating the public attitude to this question.

India, as it now stands, is a country where we cannot depend much on the good sense of the public, specially in a matter which is absolutely new to them, and in which the only aspect they cherish is that it is no good spending any money for these useless refuse of the family or the society. Besides, the co-operation of the district authorities all over India is necessary to tackle the problem. Like the English law the Indian law may lay down that it should be the concern of all District Boards to grant stipends for providing free or half free beds for pupils coming to such institutions. This will certainly divide the responsibility and the cost, to a great extent, amongst the different District Boards all over the country. In England £93 per head per annum is spent on the mentally defective, and £12 per head per annum on the normal child. In India not a pie is spent on the feeble-minded. The appointment of Local Committees, consisting of respectable and eminent persons of each district, is also necessary to enquire into and ascertain as to the available feeble-minded persons there, to prevail upon their parents or guardians to send them to the special institution, or to investigate and certify each case of parents deserving a concession rate or stipend from the District Board.

As a special honour and privilege of addressing this assembly under the presidency of a distinguished countryman of ours, who is a leader in the Legislative Council of Bengal, in the name of humanity, in the name of these unfortunate sections of ours, in the name of one of God's best works that we

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have undertaken, and in the name of the supreme interests of the nation at large, I do appeal to him to take up this problem in all seriousness and to fight our battle in the Council as best as he can so that the problem in India may be solved once for all.

The first attempt in India, it may be interesting for my audience to know to tackle this problem was inaugurated on the 24-4-32 when the *Bodhana Samiti* was founded for the first time. This is an Association for the care, control and treatment of the feeble-minded in India. It has its Home at Jhargram, District Midnapur and it has been working with some children since the 1st of July 1933 when the home was first started. We have the notes not only of distinguished public men and educationists who came there to see our work but also of the parents themselves who have entrusted their wards to us, which would show that much of a good deal has been done and can be done to improve and ameliorate the condition of these unfortunate children. In some cases, we claim to have established new neuronic linkages, while in some we have, by our method of treatment and care, improved their social attitude to an extent which is remarkable. To see an idiot child admitted into the Niketan, some two years back, startling the parents by their attainments subsequently acquired under our method of care and control, is not simply to please ourselves, but also to send a message to the world at large that by our method we *increase the power to bear*, and thus we do much more than those who simply decrease the burden.

As natural, for a pioneer work in India, specially of this description, we are suffering from want of funds to carry on our work. We have been assured by the Department of Education, Government of Bengal, of a recurring grant as also of some capital grant which we hope to get from the next year. But apart from that it is the normal duty of each soul in India to think of this problem, and to spend whatever little he can and help the Bodhana Samity in the noble work it has undertaken.

You must have all had occasion to go round the stall run by the Bodhana Samiti at the Hare School, Room M, as a part of the Education Week, and it must have surprised you to see the attainments of these children who have hitherto been kicked out as unfortunate misfits by our normal society. This is

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the beginning of our work, and that to begin a work is to open innumerable and abundant possibilities of its development, you will all agree.

My wife and myself took up this work as far back as 1929, with the hope that this pioneer work in India will find out its workers, sympathisers and helpers. My health is failing, and it has pleased Providence to throw increasing greater handicaps on our ways to carry on this work. I avail myself of this most splendid opportunity given to me by the Hon'ble Minister of Education, to appeal to every one of you assembled here to appreciate the work of the Bodhana Samity, to understand its nature, to know its importance and magnitude, and to carry the Bodhana message with you when you are going to the respective fields of your work. I earnestly entreat every one of you to register a vow to-day that from this date onwards you will not only think of Bodhana but also for it, think of the age-long indifferentism and callousness of our society with which we have hitherto neglected this vitally important question that more or less affect our very existence as a Race, and also think of the endless suffering of this helpless section of ourselves at our hands and of the staggering injustice we have so long meted out to them.

I beseech every one of you to have an all vigilant eye to find out, in whatever place you happen to be, any feeble-minded person you come across, adult or child, male or female—and to approach his parents or guardians with a view to explain to them the necessity and utility of institutional care of such persons, I request you, in the name, not only of humanity but also of the best interests of our normal society, to exert your utmost on the parents of such children and the public as well so that they may relax, with consideration and love, the rigid frowns which they come to have whenever they meet such abnormal specimen of humanity. You will please assert yourselves whenever and wherever you find the normal section of ourselves enjoying a cruel fun out of the helpless imbecility of such persons and their failure to encounter the complexities of our modern life.

Gentlemen, we require our Bodhana message to spread into the remotest corners of the country. All of you assembled here certainly realise the great truth that it is better to light a candle than to curse darkness. Kindly remember that tiny pushes of each honest worker accomplish more than mighty shoves of heroes. To-day God gives you a chance. Please remember that

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to be selfish is to imprison in a tiny cage the glorious Ego capable of penetration into the farthest confines of the Universe. We have been selfish so long—all these ages. Let us now think of those who cannot think for themselves. Initiate yourself, each one of you, with the Bodhana message, and re-assure yourselves, the parents and the public that everything can always be done better than what is being done. Convictions are always prisons, leave aside your old stereotyped ideas of rejecting and cursing the "ne'er-do-wells" and the "abnormals" of the society. You have the Leper asylums, hospitals for the incurable maladies, societies for the prevention of cruelty to animals—why not look into the Bodhana, an institution that takes charge of the useless misfits that are none but a portion of yourselves.

Please, when you go back, form Local Committees to collect informations about the existence of such persons, pursuade the guardians to send them to the Bodhana, and collect funds. Let the Bodhana open up yours eyes to the innumerable leakages in your purse which take away your money for matters which do not, and cannot stand comparison with the claim, of this best of all humanitarian institutions. Lastly, come one and all of you and join us in this one of God's best works we have undertaken, so that we may find out by love, affection and devotion the lost spring that will fasten up these plucked flowers of Humanity into a garland fit for adorning the Highest Altar at the foot of the Almighty.

EXTRA-CURRICULUM WORK IN SCHOOLS AND COLLEGES.

By DR. D. M. SEN.

The title proposed for our talk this morning is Extra-Curriculum work, or, put in another form : How could we supplement our work in existing schools and colleges so as to make them useful institutions? The title is rather unfortunate, since the epithet "extra" may easily imply something that is added on either as a superfluous ornament or as a gratuitous task. Let me therefore, first of all, hasten to make myself clear that the "extra" that I mean to advocate is more essential to the purpose of education than what has hitherto monopolised the authority of our recognised curriculum. Not that the subjects now being studied in our schools and colleges are not in themselves important or useful, they are important enough—but that the subjects that are left out—and they are many, are no less necessary. Indeed the former lose much of their educative value unless corrected and balanced by the latter. Nor should the title be taken as an admission that the existing state of affairs would be rendered perfect if only a few extra activities were introduced. To such optimism I lay no claim. On the contrary, we all of us dimly and vaguely feel that there is something radically wrong with our present system of instruction, though few of us have either the wisdom or the daring to place our finger on the root-cause.

The argument that I venture to submit for your consideration to-day is, that so far we have got out of our present methods of education what our social and economic needs in the last two generations of political conditions in our country have led us to demand of them ; that, if we did not get more, it was because our intellectual and imaginative natures did not apparently rise beyond those needs ; that if we are to-day disenchanted with the present system of education, it is because our needs have outgrown it ; and that if we want our finer and truer needs which are gradually reviving in us to be at all worked out—even though partially and imperfectly—through education, we must sufficiently enlarge its scope and deepen its character to cover these needs.

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The present growing discontent with our educational system has, I believe, much to do with the increasing number of our unemployed and unemployable educated men. There was a time when an ample demand from offices and professions justified the products that were being turned out by schools and colleges every year. Now that there is no need for them, many would turn round on those institutions which once they held in high esteem. It is a commonplace remark now that the so-called educated people are neither suited for any practical sphere of activity, nor does their educational equipment make them competent to adjust themselves to their social environment. All over India there is to be noticed a vague feeling of growing discontent about our prevalent system, in newspapers, public meetings and learned academic addresses. The critics seem to have one point in common : They all deplore the separation of the intellect from the rest of our nature and the emphasis that the current education puts on the intellect. Our sole attention is devoted to giving children information, not knowing that by this emphasis we are heading for a conflict in their physical, intellectual and spiritual life. The dismal record has embittered a poet to castigate the process as the 'Parrot's training'. We have been dubbed by great men of our age as a nation of incompetent crammers and unenterprising clerks, ever hunting for soft jobs for which our slave mentality is amply fitted. At the end of his educational career, as the average youth walks out of the portals of his Alma Mater, he finds that the warm welcome that greeted his predecessors a quarter of a century ago is chilled into a contemptuous silence. As he roams about with a tired mind and a starved body looking for a humble berth in life, advice gratis is impertinently hurled at him ; the practical man of the world finds a sadistic pleasure in humiliating the helpless creature, on whom gradually dawns the bitter truth that the golden days of his life have been spent in chasing empty abstractions—shadowy beings that are not the creatures of the world we live in. It becomes obvious that our schools and colleges aimed at producing a certain type of men who were being turned out to meet some extraneous demand. Those who advocate the cultural benefit of the existing system must face the fact that in origin it was intended as a preparation for money-making or earning an easy livelihood in the days when clerical and educational services were not so crowded. To this source the entire system of our modern education can be

traced from the infant school curriculum to the highest courses in the University. Inspite of the endless reforms and reconstructions that have modified the system, its framework still remains true to its original type—a system organised to meet certain demands which existed once but exists no more. The tragic consequence is, that no small part of what is practised as education is largely wasted since it filled only temporary gaps in a country which was changing fast to adapt itself to a novel political system. It did meet certain wants in the days of its political origin but yields now either nothing or little that is desirable. In a poor country like ours, the major bulk of the production of this comparatively expensive machinery is wasted for want of correlation with the social need.

Let us have a glance at the working of our system from within. I have already observed that the stress of the current system is on the intellectual phase of our mind. Knowledge with us is synonymous with a mass of informations. As the horizon of knowledge widens, our curriculum threatens to be a miscellaneous tyranny of "Subjects" in which there is no proportion of growth in the different aspects of our mind and "subjects" themselves are not only at cross-purposes with one another, but out of harmony with the human needs of the modern age. Those with superior intellect seem to pass out with flying colours. But they hardly acquire the skill of applying the vast knowledge that they have stored. Knowledge and incompetence are often found together and many a failure in life is not so much the result of ignorance, as of mis-application of what is known. A little knowledge may be dangerous but much knowledge is far more dangerous in the absence of the collateral growth of the mind.

If we could but see ourselves in the plane of our mental development we would perceive a vision of disproportionate and stunted growth parallel only to the pathetic spectacle of the physical health of our people. Where food-stuff is being depleted of its precious nourishing element, the result is apparent to our outward eye. Here too, sadly enough, we find the repetition of our blunder in the educational sphere, namely our fondness for the wrong kind of food which is undermining our strength and vitality. Our diet has reached such a state of impoverishment that a cry for wholesome food has arisen from the heart of the thinking minds of the country. More vitamins and more

protein if we are to survive in the struggle for existence. It will not do merely to add extra items to our existing menu, we have to make a radical change in the nature of our usual foodstuff.

No wonder, in our mental nourishment we are asking for more. The philosophy of extra-curriculum work in our country has its parallel in the region of our health. What we should want is more wholesome education. Does our problem then boil down to this—that while our existing curriculum may nourish our intellect, the nature of our extra-curriculum work should be such as to nurture the growth of the rest of our being? If that be so, one would apportion the greater part of our time-table to this, so called "extra" work, as it covers a far vaster range than our "courses and syllabuses" do. Our existing institutions will, no doubt, gasp at the fantastic demand and the present guardians would advise us to apply our conclusion to anywhere else than their wards. Even supposing the latitude we ask for, were granted us, the right perspective of extra-curriculum work would still be lacking.

Our approach to the so-called extra-curricular activities must not be through the avenue of analysis. The mind is a living organism; it may be analysed for the purposes of a scientific study within certain limits. But if we fancy we can dismember it like a machine, attend piecemeal to its different parts and attain a growth of the whole, it will not be long before we are disillusioned. In a scientific age, when scientific thinking is the fashion, we are often apologetic for any other mode of approach to a problem. "The modern man is at his best when he is dealing with analysis—his recent education has all tended in that direction. But he is something of a blockhead when he comes to synthesis. He seems to have lost the secret of it; his education has left it out.

For breaking a thing up into parts and studying each part in separation there has never been anybody to compare with the modern man. But when you ask him to put the parts together again he is like one who has lost the use of his wits. "Wholeness" seems to baffle him.

Never is he more at sea than when he is dealing with that most interesting sort of wholeness of which he himself and his fellowmen are the chief examples in the universe. If he is treating of the body he comes off brilliantly with his biology and his physiology; if he is treating of the mind he comes off

not quite so brilliantly, perhaps, with his psychology. But ask him to put the three sciences together and show you a man functioning in his wholeness, body and mind together as an inseparable unity and the odds are that he won't know what you mean. We have to-day a great regard, if not an awe, for the Specialist. The modern man loves to analyse and specialise. There is a growing tendency in this country, of regarding education as a specialised function performed by an expert class of school-masters and professors on a passive multitude waiting to be shaped in different patterns, children and adults who appear as so much raw material for the specialists to operate on at the directions of biologists, physiologists, psychologists and other 'logists'.

When our vision is obscured by this "robot", patched up by different analytic Sciences, the whole man is banished from the scene. We need to-day a revolution in our outlook—the centre of gravity of the system needs to be shifted. The whole man is to be reinstated in his proper place. It is the all round growth of the 'whole man' which must necessarily replace whatever fetish we may be paying homage to. A true system of education is for the nurture of men—men as thinkers and creators of real values. Creativeness is the function of human mind. It is the urge for self-expression in all its possibilities. Through the multiplicity and variety of creative personalities the human civilisation takes its strides. In creative activities the human mind finds its release in spontaneous joy. The notion of the 'whole man' as a born creator is then the foundation of the philosophy of the so-called extra-curriculum work.

It is easy, in the existing educational centres to forget or overlook the creative urge in the child. The weight of the traditional curriculum lies so heavily upon us and upon the child that his interests are being crushed and we have little leisure to notice him. But look at the same child outside the walls of the school in the fields and woods, by lakes and rivers or with a potter and a carpenter. Watch his interest wherever Nature is living, moving and creating. Listen to his questions before he is sophisticated and learns to separate learning from playing and creating, and knowledge from life and you will find the key to solve the problem of your extra-curriculum work.

The spontaneous activities of young children may roughly be put into three main groups (i) love of movement and of perfecting bodily skills ; (ii)

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expression of the world of imagination within ; and (iii) curiosity in actual things and living beings ; the discovery of the world without. It is not the distinction felt by the child himself. In his activities all the types are blended.

For the school-going child the living world does not divide itself into English, Bengali, History, Arithmetic or even Geography, Nature Study, Drawing and Hygiene. We may for our convenience and economy parcel out his time into different chambers, but the division hardly corresponds to the "whole" demands of the child-mind : we have to be ever-aware to the fact of the *unity* of the child's interests. The child is interested in things not "subjects".

As the child grows the ways of activity are modified. "The skill of his limbs, as he grows, serves more and more adequately both to reach his practical aims in the real world and to express his feelings and phantasies. As his actual knowledge of the world broadens and deepens, his feelings and his sense of values change too. The world of adventure gradually replaces the world of phantasy—the child seeks "true" story and "real" events.

It is not for me here to trace the growth of the child-mind in any further detail. The intuitive understanding of the problem of the child-mind as a whole have inspired educational reformers to sound notes of warning to those who introduce schemes and perpetuate systems. Sharing this understanding, the gifted teacher may transcend the barriers of the fossilised curriculum of the current system. If one could imbibe this attitude, it would transform one's conception of work in the school and all the details of one's practice. Our ability as educators will be judged by our capacity to draw this unity of interest of man, whom his creative urge goads on and on, from the trifle to the "superhuman" achievement.

The Genius of the Boy-Scout movement realised the possibility of this unity of interests and wove in the pattern of his play not so many dry subjects but imagination, understanding, broad human sympathy, language, practical and artistic skill. Map-making and map-reading, the understanding of weather signs, bird and animal life, the ecology of the common flowering plants and trees in the country, have their beginnings here. The boy's growing independence of temper with his age and his search for experience and the mastery of his environment lead to his wandering farther and farther afield. This is but

his opportunity for wide and practical knowledge. It rests with the educationist whether his urges are to be turned to useful account or neglected and repressed until they are perverted into mischievously destructive tendencies.

The "wandering birds" of Germany aim at harnessing the same interests, and their activities overflow with the richness of the joy of wandering in fields and woods, hills and dales, deep seas and dense forests. One has but to step out of the school precincts and there is to-day no end of "movements" and "fraternities", designed to meet this extra-curricular demands.

The sense of property is strong in the young minds. The heterogeneous collections which strain the pockets, are despised by the parents but are highly treasured by the youthful owner. Pebbles, empty match and cigarette boxes, tram and bus tickets and what not, find their ready way into the museum of the enthusiastic collector. Intelligently used it offers one of the most powerful lever of education. A collection of herbs, flowers, insects, plants or any useful article, made by the children themselves will have a far greater appeal to them than any elaborate and well-ordered collection of specimens inherited ready-made. Starved and neglected, this very tendency will flow into the underground channels of envy and theft.

A proper understanding of the nature of any of these activities will give us the clue as to how to devise the so-called extra-curricular activities in our special environment. It is not possible here to lay down a list which will suit all the educational institutions, residential or day schools, rural or urban, primary, secondary or tertiary. It is, however, easy enough to mention activities, like singing, dancing, mining ; the social values of games, sports and school-goings, the aesthetical values of all arts and handicrafts, the practical and moral values of various other group activities, so on and so forth and discuss their significance in detail. But I am sure you do not want this talk on extra-curricular work to be extra-lengthy.

Before I conclude, I should like to emphasise, even at the risk of repetition on this point. The very title of this paper may suggest that our whole enterprise is to be treated as mere extension of the practice current in existing educational institutions. Rather, I have proposed a reversal of the whole attitude. Instead of taking school and college as the fixed type which all education must imitate or extend, we should be asking what changes are needed in these institutions,

in order to bring their activities to further the cause of a wholesome education and so transforming them into creative centres of real values. When this sense of the vital function of the school is lost or blurred, all the extra-curriculum work will be regarded as *extra* and the curriculum will reign supreme in the temple of learning shutting the doors whenever convenient to outcaste "extras". We shall have, when our superficial enthusiasm is over, a set of degraded classes in drawing, Nature-Study, weaving, carpentry, soap-making, basketry, etc., where neglect and callousness will not affect the "division of pass" of the scholar, who will go out into the world with a satisfactory progress report which 'knows nothing against his character'.

We have grown accustomed to regard all human values subservient to academic values. The narrow analytic nature of our mind is, as we have seen, due to the over-emphasis on pure rationalism in our educational system. We in Bengal especially, where education was imported first, are becoming increasingly "critical" as we rapidly lose the creative enterprise and the use of our hands. We are at our best when we are analysing a theme, pulling things to bits and running down people known or unknown. The unilateral development of our mind makes us "able critics of life" but well-nigh useless in an age which calls for the heroic stuff of human nature—the capacity to do. As we lose faith in our creative ability, the shadow of disbelief obscures our appreciation of the enterprise of others, leading us inevitably to the futility of cynicism. We seem to understand very clearly where our ills and ailments come from, yet, when the actual situation confronts us, we are inert enough to let things go in the wake of the gone. We are unenterprising in our career and inactive in our leisure. We have learnt to seek ready-made jobs in state service or Mercantile offices and we are learning to buy amusements ready-made from Foreign Syndicates or their country-made understudies. The function of education is the growth of the man—man whose work is useful in life and whose leisure is fruitful in creative joy.

Must we let our children drift as we were allowed or made to drift? If we help to save the next generation from the futility that fell to our lot, we shall have partly redeemed it.

NUTRITION AND DIET IN INDIA.

By H. ELLIS C. WILSON, M.B., Ch.B., D.S., (INST. OF HYGIENE).

There can be no question that to-day the problem of nutrition and food is arousing a considerable amount of public attention all over the world. The general impression is that malnutrition is widespread and the cause of numerable diseased conditions. The main object of this lecture will be to discuss the problem as it affects India and to trace in outline how it is to be tackled for the masses, with if possible, the resources available or potentially so. From the medical standpoint standards for adequate diets have to be elaborated to which one must aim. This can not be done entirely from the laboratory alone. The food habits of the people in other words a diet survey first be made and with this a concomitant survey of the incidence of certain types of disease and physical measurements. An analysis of the foods eaten shows it to be composed of some six different constituents. (1) Proteins which supply the building stones for growth and the repair of living tissue. Fish, flesh, milk and eggs contain a high percentage of protein of good quality, where this food is present in relatively lesser quantity and of a poorer quality in cereals. (2) Fat. Animal fats of good quality such as butter and cream, and of poorer quality such as vegetable fats and oils: (3) Carbohydrates which are present in abundance in cereals such as rice, atta etc. (4) Vitamins the most important for India are probably vitamin A present in milk fat, and carotene a yellow substance present in green vegetable which the human body is capable of transforming into vitamin A. The absence of this vitamin leads in India to ulceration of the cornea of the eye and ultimately blindness and is thought to predispose one to infections generally. Vitamin B is concerned in the prevention of beri-beri which is seen in Burma and Madras. This is essentially a nervous disease and must not be confused with the condition seen in Bengal, called epidemic dropsy (sometimes erroneously called beri-beri.) (5) Minerals. Calcium or lime and phosphorus are two mineral which tend to be deficient in Indian dietsaries, the only really good source of lime is unfortunately milk which can not be available for all. (6) Water.

DIET SURVEY.

A small diet survey has been carried out in this laboratory within the year covering some Bengali middle class families and three children's institutions, a Moslem, a Hindu and an Anglo-Indian. In general the diet of the families was not too bad but several points merited criticism. The amount of good quality protein was low the same applied to the fat. The percentage of the total food eaten derived from cereals was too high and the milk products though by no means negligible were much below what is recommended by Western standards. The children's institution on the other hand were found to be poor in total and animal protein total and animal fat and above all in calcium. The consumption of milk products was either nil or negligible in relation to the total food consumed. *Cost*—As regards the cost of these diets the institutions appeared to show the best return for the money spent in spite of the fact that qualitatively they fell below those of the families. The cost of such an institutional diet was in the region of 3 to 4 Anna per head per day. If a pint of milk had been given to each per day this would have brought their diet within reach of what is considered good or adequate. This would increase the total cost however to about Annas 5 to 6 per head per day—i.e. Rs. 8 to 10 per head per month and as you will appreciate quite beyond the reach of the masses in India.

Possibility of India producing an adequate diet for all

Recently the United States Department of Agriculture under the aegis of the Agriculture Adjustment Administration worked out four types of diet and the number of acres of agricultural land required per head to produce such diets. A restricted or emergency one required one and a half acres per head (exclusive of pastureage) while a little over two acres sufficed for a liberal diet. A comparison of the yield of land in the U.S.A. and India is difficult but the following figures are at least suggestive of the problem involved. The total area of India is 1165 million acres and one might assume that about half this is available for agriculture. This leaves 583 millions acres for a total population of 350 millions, i.e. just about 2 acres to each person. In practice in some of the densest population areas of India there are about 900 inhabitants to the square mile and engaged in agriculture. This is less than

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two-thirds of an acre per head. These figures can not be taken too literally but at least they show the nature of the problem involved.

Suggested method for feeding India economically.

If India is going to give adequate diets to all within her own boundaries the practical issues for the present are :—(1) To fix dietary standards, which can be interpreted in terms of readily available Indian foodstuffs. This would involve a diet, morbidity, and physique survey. A complete analysis of foodstuffs as regards minerals vitamins etc. which is already proceeding in this laboratory and at Coonoor S. I. India. (2) The opium utilisation of the land for food products not only for man but also for cattle.

The advantages of increased milk production.

The analysis of the diet of the families mentioned above showed how often a mediocre or poor diet had been made adequate by the taking of extra milk or milk products. An increased consumption of milk for all is no original idea but it was particularly to be recommended on this country where for various reasons flesh or even animal foods are not acceptable to large numbers of the community. The consumption of more atta in rice eating areas is also to be recommended on account of its higher content in certain minerals such as calcium. The big question of vitamins has yet to be worked out. At present we are far from having complete knowledge of the minimal requirements and significance of those substances in human nutrition.

কালবৈশাখী

ডাঃ এস, এম, সেন, আবহিদ

(বঙ্গভার সারাংশ)

কালবৈশাখী বড়কে অনেকে 'সাইক্লোন' বলিয়া থাকেন ; কিন্তু প্রকৃত সাইক্লোনের সঙ্গে ইহার নিম্নলিখিত প্রভেদগুলি নির্দেশ করা যায় :—

১। সাইক্লোন বহুমূল ব্যাপী হয় এবং কোন কোন সাইক্লোনের ব্যাস পাঁচশত হইতে ১০০০ মাইল পর্যন্ত হইয়া থাকে ; কালবৈশাখী বড় অনেক ছলেই ৪।৫ মাইলের বেশী বিস্তৃত হয় না ।

২। সাইক্লোন বঙ্গোপসাগর হইতে উৎপন্ন হইয়া ঘটায় ৩০।৪০ মাইল বেগে উপকূলের দিকে ধাবিত হয় ; আর কালবৈশাখীর বড় ছলেই উৎপন্ন হইয়া সাধারণতঃ প্রশস্ত নদীপথের উপর দিয়া অগ্রসর হইয়া থাকে ।

৩। সাইক্লোনে বায়ুর চাপ কমিয়া যায় ; কিন্তু কালবৈশাখী বড়ে এই চাপ বৃক্ষিপ্রাণ হইয়া থাকে ।

৪। সাইক্লোন অনেক সময় দীর্ঘকাল স্থায়ী হয় ; কালবৈশাখী বড়ের অকোপ সাধারণতঃ এক ঘটা কাল স্থায়ী হয় ।

কালবৈশাখী বড়ে প্রতি বৎসর বহু লোকের আগ্রহান্বিত হয় । ইহার তুলনায় সাইক্লোন জনিত ক্ষতি বৎসামাত্র । এজন্ত ডাঃ সেন কালবৈশাখী বড়ের পূর্বাভাস দিবার বিশেষ প্রয়োজনীয়তা অনুভব করেন । পৃথিবীর অগ্নাত্ম অনেক দেশেও এইরূপ বড় হইয়া থাকে এবং পাঞ্চাত্য পশ্চিমদিগের মতে এই বড়ের পূর্বাভাস দেওয়া অসম্ভব ; কারণ তাহারা মনে করেন এই বড়ের মূল কারণ অতি অল্প পরিসর স্থানের মধ্যে সীমাবদ্ধ থাকে এবং অত্যন্ত অল্প সময়ের মধ্যে ইহার উৎপন্নি হয় । গত ছয় বৎসরের গবেষণার ফলে ডাঃ সেন পাঞ্চাত্য পশ্চিমদিগের এই ধারণাকে সম্পূর্ণ আন্ত প্রতিপন্ন করিয়াছেন । তিনি ইহার পূর্বাভাস দিতে সক্ষম হইয়াছেন এবং প্রায় সর্বত্রই তাহার এই পূর্বাভাস নদীপথ গামী অনগণের পক্ষে কল্যাণকর হইয়াছে ।

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ডাঃ সেন কালবৈশ্বাৰী বঢ়কে বঙ্গদেশে সুপরিচিত তিনি প্রকার বায়ুৰ সংৰাতেৰ কল বলিয়া নিৰ্দেশ কৱেন ; বঙ্গোপসাগৰ হইতে উৎপন্ন আজ' বায়ু, পূৰ্বহিমালয়েৰ শীতল বায়ু এবং পশ্চিমদিক হইতে প্ৰবাহিত শুক উত্তপ্ত বায়ু যখন একছানে আসিয়া মিলিত হয় তখন গুৰুত্বেৰ পাৰ্থক্য হেতু ইহারা বিষম আলোড়নেৰ স্থষ্টি কৰে ; সঙ্গে সঙ্গে লঘু আজ' বায়ুৰ উৰ্ক্কগতিৰ ফলে মেৰ, বৃষ্টি, ঝঁঝা, শিলাপাত ও বিচ্ছুতসঞ্চাৰ প্ৰভৃতি হইয়া থাকে । বাংলা দেশেৰ কৃষি, নৌবিদ্যা উজ্জ্বল বিদ্যাৰ দিক হইতে আবহতত্বেৰ অগ্র কিছু অপেক্ষা কালবৈশ্বাৰী বঢ়েৰ তথ্য ডাঃ সেন অনেক বেশী প্ৰয়োজনীয় বলিয়া মনে কৱেন ।

উপসংহারে ডাঃ সেন বলেন, কালবৈশ্বাৰী বঢ়েৰ তত্ত্বেৰ স্থায় জটিল বিষয়েৰ অমুসন্ধানে জীবন ব্যাপী গবেষণাৰ আবশ্যক । এজন্ত বিদ্যালয়েৰ শিক্ষকগণ যাহাতে বালকগণকে উৎসাহ দিয়া এ বিষয়ে আকৃষ্ট কৱেন তজ্জন্ত তাহাদিগকে অহুৱোধ কৱেন ।

BROADCASTING.

A LECTURE DELIVERED BY MR. J. R. STAPLETON.

Mr. Chairman, Ladies and Gentlemen,

The position of honour in which I find myself this morning—namely, that of a Speaker on this platform—is the outcome of a promise I made some time ago to the Hon'ble Minister to give a talk on Broadcasting.

I am, unfortunately, not one of those clever people who, when asked to speak in public can dash off a few notes over his Chota Hazri and think no more of what he is going to say until he pulls them out of his pocket on the platform ; I wish I were ! But as I am not, I asked several of my friends connected with this Educational Exhibition what they considered would be most likely to interest my audience, and their opinions I found interesting, and sometimes very amusing. One gentleman suggested that I should give a Technical talk on how Broadcasting functions, another advised me to give an History of Broadcasting in Bengal, whilst a third, who apparently had an axe to grind, said he thought it would be a splendid opportunity to criticise the Government, but he very diplomatically refrained to advise me just *what* to criticise them about ! So I decided that the occasion is an appropriate one to speak, and by actual demonstration show what results might be expected to obtain by applying the science of Broadcasting as an aid to the spread of Education and enlightenment to the children and youth of this country.

One of the most important claims put forward by those who fought for the retention of the Stations and continuance of the Service when the Retrenchment Committee some years ago recommended the total abolition of the Broadcast service, was the unrivalled and economical value of Radio Broadcasting as a means by which the pursuit of Knowledge, Entertainment, etc. could be promulgated. Its possibilities were at that time concisely stated by Sir Joseph Bhore (then the Hon'ble Member-in-charge of Industries and Labour) when introducing the Broadcasting Bill in the Legislative Assembly. These were his words : "Broadcasting, Sir, has a great future in this country, and if, by the means which I am now proposing, we are able to carry it over

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these critical years, I feel certain myself, that Broadcasting is destined, not merely to bring us a rich return, but to prove an instrument of the utmost Educative value to the country".

Although those words were spoken some years ago, and at a time when Government were in considerable doubt as to the advisability of spending more money on a Service that had proved so unsuccessful in the hands of a private company and a loss to Government. However, the Bill was passed, and the means by which Sir Joseph proposed to carry the service over those critical years have proved successful.

The whole aspect of Broadcasting in this country during the last two years has completely changed, and there is every prospect of Sir Joseph's prophesy being fulfilled. Both Licenses and Revenue have considerably increased during the last three years, and whilst Government are as yet some distance from obtaining that rich return Sir Joseph spoke about. The Revenue curve is certainly showing an upward trend, but it is the latter part of Sir Joseph's prophesy, i.e. the educative value of Broadcasting on which I desire to speak and demonstrate more particularly this morning.

It was my intention to speak first and conclude my talk with a practical demonstration of School Broadcasting, but as the demonstration requires the use of the Broadcast Transmitter, I have been obliged to reverse my original plan in order not to encroach upon the regular programme of the Broadcast Station which commences at one o'clock.

I am therefore going to ask you now to imagine yourselves a class of scholars in any Mofussil School. The morning has been hot, and the weather sultry, you don't feel in the least inclined for study, and it has been a wearisome time listening to your Master pointing out the errors in your Home lessons, and that business of trying to work out the percentage of how much profit a farmer makes on one hundred and forty-four head of cattle by having to sell some at a profit, and some at a loss has proved exasperating. Your answers have driven the Master to desperation, tempers are frayed all round, and so, the Master, with a sigh of relief, says, as he looks at the clock, "That concludes the lesson in Arithmetic this morning. You are now going to listen on the Wireless to Professor Clarke give his second talk in the series 'Personalities.' Be quiet, and listen attentively."

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DEMONSTRATION.

Now that Demonstration, Gentlemen, will give you some idea of what a Talk to a class of Scholars can be like, and what such a diversion in the ordinary School routine will mean, and I can safely leave it to your own imaginations what the ultimate value of being able to convey to a thousand schools and ten thousand scholars with such ease, and at such low cost, the lessons and knowledge you desire to impart will mean to your educational system.

I am sure I need not spend any time on enlarging upon the advantages to be obtained by adopting and adapting Broadcasting as an aid to your work. There can be no doubt about its suitability and possibility in this connection, practically every country in the world that has a Broadcasting system is using it for educational purposes. You have only to read the Annual reports of the Broadcasting organisations of Europe and America to obtain an insight into the tremendous growth of Educational Broadcasting during the past few years.

As to its value from the view-point of the scholar, I will just read you a short extract from a letter I received by the last Mail from a young lady, she was, as a matter of fact, educated in this country, she was married in Calcutta about 18 months ago, and is now residing in England. This is what she says :

"How is the Broadcasting going in India? I am very interested in the Children's Hour, and used to listen to it every day when I was left on my own, and especially the Programme for Schools. If only the lessons were like them when I was in School, we might have been better scholars, of course, it would not be an easy matter getting up Programmes such as these, but they are really very clever and most interesting."

Now there you have a testimonial unasked-for, and unexpected from a lady who has evidently been very impressed with the value of School Broadcasting.

Several attempts have been made in the past to organise School Broadcasts, and a number of informal meetings have been called from time to time at which the problem has been discussed. An Educational Broad-

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casting Committee was formed in 1932 to draw up a scheme and suitable syllabus. Time was allotted and a start was made, but unfortunately, about that time Retrenchment Committee's recommendation to close down the Stations, the Educational Committee and all our plans for development on these lines were frustrated.

Things, however, have changed very considerably since then. Broadcasting has, as I mentioned in the earlier part of my Talk, assumed a very different aspect. The Central Government are devoting much more attention to it. Additional grants are being given to the Stations to spend on Programmes and development and we now have a Central Broadcasting organisation at Delhi ; a B.B.C. expert, Mr. Lionel Fielden, as the Controller of Broadcasting, and Adviser to the Government of India.

The Government of Bengal have given a lead in purchasing a number of sets to instal in villages, and allotting a fairly large sum for the development of Rural Broadcasting in the Midnapore area, and thanks to the enthusiasm of co-operation both the Deputy Secretaries to the Government of Bengal and the District Magistrate of Midnapore, we hope within the next few months to have both the Rural Broadcasting scheme, and School Broadcasting at Midnapore well under way.

I should now like to say a few words with reference to what we have done ourselves to assist the Government of Bengal in their endeavours to introduce Broadcasting into their Rural Schemes. The Government showed their eagerness to avail themselves of the service by purchasing three Community Receivers, similar to this one, and placing them in certain Mofussil districts as an experiment and entering into an arrangement with us to transmit at a time suitable to the villager. They undertook to supply speakers on the various subjects they considered appropriate. We met their wishes by allocating the necessary Broadcast time, and ourselves supplied both speakers and Broadcast matter, when they themselves were unable to do so.

The experiment with these sets having proved successful, the question of inaugurating a Rural Broadcast scheme submitted by the District Magistrate of Midnapore was considered and approved, and a fairly large sum of money has this year been granted for this purpose. The three sets mentioned above

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were transferred to Midnapore, and another fifteen have been ordered and will be installed in that Area by the end of March this year.

The question of erecting a small Broadcast Transmitter at Midnapore to enable the Magistrate to broadcast matter he considers advisable to the listeners in his own area is still under consideration. There is a great deal to be said in favour of having small local Transmitters, and much to be said in favour of having Rural Broadcast Programme broadcast from a larger Central Station. The possession of a small Transmitter on the spot would give the authorities in a particular area freedom in the matter of time at which broadcasting could be carried out, it would enable them to broadcast matter of particular interest to the population of the particular area, and in the dialect best understood, it would doubtless foster a certain amount of local trade in Radio apparatus and induce the population to take a much greater interest in Broadcasting. On the other hand, the initial cost and maintenance of a Broadcast Transmitter is expensive, the Area covered by it would be limited, and there would be difficulty in obtaining sufficient local talent and material to broadcast an attractive Programme every evening. If this could be done by the local Station where is the justification for the expenditure? Would it not be better to spend the money on equipping more villages and take the Programmes from a Central Station, Calcutta for instance, which could, if necessary, devote a short period to items of particular local interest and supply a Programme of Entertainment of general interest for the remainder of the period. This could certainly be done with greater ease and facility by a Central Station than by a local one. These are the problems that are at the moment being considered by both the local Government and the Broadcasting Authorities.

In the meantime, we have recently revised our Programme Timing arrangements to embrace both Rural Broadcasting and School Broadcasting. The former we are broadcasting under the title of Rural Reconstruction Series, and the latter, Educational Broadcasts for School students. We devote 20 minutes on Mondays, Thursdays and Saturdays to the Rural Broadcasts, and half an hour on Mondays and Fridays to School Broadcasting. Part of the time in the Rural Reconstruction Series is filled by speakers and matter supplied by the Government of Bengal, and the remainder of the time by ourselves, and we anticipate that with the equipment of the new Village Sets at

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Midnapore, Speakers and Broadcast matter appropriate to the area will be regularly supplied by the District Magistrate in the near future.

As regards School Broadcasting, which, of course will be of more interest to you. We have, I regret to say, not been so fortunate in the matter of co-operation with the Educational Department as we have with the Department responsible for rural re-construction, and whilst we are most grateful and thankful to all those gentlemen who have from time to time broadcast on educational matters for us, I am sorry to say that the response to our overtures and several attempts to interest the educational Department to take up the question of broadcasting to schools seriously and co-operate with us has been in the past regrettably apathetic. Considering that a broadcast service has been available for this purpose and in this city for a matter of seven years, it is a matter of extreme disappointment to me that we have not as yet and organised School Broadcast programme, and that we have not as yet been able to persuade the Educational authorities to come forward with any definite proposals to introduce it.

This, gentlemen, is, I consider a state of affairs that ought to be remedied at the earliest possible moment and one we should like to see rectified. I invite you to give it your most earnest consideration.

In the absence of any official educational scheme, we are ourselves filling in the time devoted to this section (time I would like to add that we are very anxious to hand over to your Department) with Talks, Lectures, Items of News and Musical entertainment of an instructive and general nature. We have made no attempt to introduce a properly organised system of School Broadcasting, such as is being done in England and on the Continent, as we feel this could be more competently done by and with the co-operation of Educational authorities. Moreover, although we have for some considerable time, been allotting Broadcast time to Educational matters in the hope that by so doing the schools and colleges who could afford to have Wireless Sets would be encouraged to instal them. We do feel that unless the authorities principals, and teachers take an active interest in Broadcasting by co-operating with us in the matter of supplying Lectures and Speakers, and a properly thought-out plan on which an Educational Broadcast Programme can be based and built up, very little progress will be made and I wish to take this oppor-

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tunity of inviting the Educational authorities, principals of colleges and schools, and the teachers in this province to come forward and help us in this way.

We do not consider it our business, indeed we think it would be impertinent for us to assume the role of advisers to you in this matter. You are all experts in the matter of Educational propaganda, and know far better than we what require to be done and the best manner of doing it. We are merely the conveyers, and are ready to offer you the means and allocate to you the time as far as possible, to enable you radiate the knowledge you are anxious to impart.

There is the Transmitter, time has been allotted in the Programmes for the purpose you are aiming to serve, it is for you to decide whether Broadcasting can be of assistance to you, it is for you to explore its possibilities and devise ways and means by which it can be adapted to your requirements.

If I may be permitted to make a suggestion, it would be to advise you not to spend too much time on the questions of how you are going to finance the scheme, what schools you are going to equip with Receivers, what kind of Receiver you will have, and wait six or twelve months for the report of select Committee. What I would like to see or hear about is you appointing some one to take up the matter of Educational Broadcasting, and who would come along and say to us "This is what we want done, these are the Times we consider the best for our purpose at present, what can you do to help us?"

The questions of enlarging your efforts, financing your schemes and adapting your Broadcasts to the recommendations of subsequent committees will gradually develop and your methods can be revised as time goes on. I feel confident that if you make a start now in a small way, and let it be known what you are going to do, you will find a number of the school principals, teachers and scholars when they realise you are on the air will soon find ways and means of providing themselves with the necessary equipment.

I was talking to a man the other day on this subject and I said to him, that the difficulty appeared to be, the schools and scholars were so poor that they could not afford to purchase Sets, and the Educational Department have no funds to finance a scheme of School Broadcasting. He said : "Your argument does not hold water in actual practice. Do you know that the highest percentage of Broadcast Receivers to population in England, is not

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amongst the people with money, but in the poorer districts, and where unemployment is greatest." His words greatly impressed me, and I believe surely as trade follows the flag, so will listeners follow the Broadcast Service, and I have every reason to think this will be the same in your case. Work out an interesting School Broadcast Programme, put it on the Air, and I have no doubt that many of your schools will evolve ways and means of their own to reap in what you sow.

I am not suggesting that you will not require a certain amount of finance to organise and broadcast your programmes, or to supply Receivers Sets to a number of schools that cannot afford them. You will, but this need not prevent you from making a start, and if you are able to say to the Government "We have started a School Brodcasting, This is what we are doing, and this is the result of our years work, we now want funds to equip a hundred schools with Receivers this year and to pay for better programmes." I am convinced your demands would receive sympathetic consideration.

The capital cost of equipment 100 schools with suitable Receivers should not amount to more than say, Rs. 200/- to Rs. 300/- per school, or even less, and the cost of maintaining the Set could, I imagine, be borne by the individual school. I understand this is how the system is being introduced at Midnapore, and I take it that some of the schools here would be in a position to do the same.

The Set you see here is specially designed for Village Broadcasting, and is intended for a community and for Broadcasting in open places. It is really too big for a small school room, but it has many features that are ideal villages in which no power is available. It would be too expensive and unnecessary where power is available, and where a smaller Receiver would meet the demand. The Government of Bengal have ordered a number of similar Sets for Midnapore, and the price will work out at something less than Rs. 500/- with Battery and Aerial equipment complete, and erected at site. This may appear rather a large sum at first, but when you come to consider that about Rs. 250/- is Customs duty, and returns to the Government, the Set, considering it will serve a large community in the open air its special design, its fool-proof, ant-proof, and Weather-proof qualities and robust design, the price is actually quite reasonable.

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However, don't let the question of Receivers deter you from taking up the question of inaugurating your Broadcast scheme, leave that until such time as you have tested the various Makes. You will find that you will require different Receivers for different schools, such as an all Mains Set for schools where there is Electric Supply, a Battery Set for schools in which no power is available, but handy to a charging plant, and still another design for schools that have neither power nor means of charging batteries. Since writing the above it may interest you to know that last evening I had the opportunity of talking to Mr. Griffiths, the District Magistrate of Midnapore, who informs me that he anticipates installing Broadcast Receivers in twenty schools at Midnapore within the next few weeks and that he has written to the Educational authorities at Calcutta to know if they will supply the programmes. I also see in this morning papers that the Central Government have allocated Rs. 48,000 for broadcasting purposes, and I trust with these and the efforts of other Provinces to utilise this service before you the educational authorities in Bengal will be induced to take a more active interest in broadcasting in the future than has been the case in the past.

I appologise, gentlemen, for taking up so much of your time, but I trust what I have said has proved of interest and that I have made it perfectly clear that the Broadcasting Organisation in this city is here to give you all the help and assistance in its power to adapt its service to your needs.

I know the Controller, Mr. Fieldan, would wish me to help you in every way possible, he is fully alive to the use the service can be to your Department, and you may be quite certain that any scheme you care to submit either to him direct, or through me, will receive not only my, but his most earnest consideration.

THE UNIVERSE AROUND US.

BY DR. JYOTIRMAYA GHOSH, M.A. Ph.D.

The celestial object nearest to us is the Moon. It is a sphere of radius 1000 miles, i.e., one-fourth that of the earth. Its distance from the earth is 240,000 miles. It has a very ragged surface, with cavities, mountains and craters. There is no sign of any living being inhabiting its surface.

The object most important to us is the Sun, from which we receive heat and light. It is situated at a distance of 93,000,000 miles—a distance which would be travelled by a train moving at the rate of 40 m.p.h. in almost 300 years. Its diameter is 866,000 miles; its volume one and a quarter million times that of the earth and 750 times the total volume of all the objects in the solar system. Its weight is 330,000 times that of the earth. Its temperature is 18,000°F. Its brightness may be said to be 16,000,000,000,000,000,000 candle-power. It has irregular cavities strewn over the surface, which are called sun-spots, sometimes measuring 92000 miles by 62000 miles. It rotates about an axis, the period of rotation being about a month.

The planet nearest to the sun is Mercury with a diameter of about 3000 miles. Its distance from the sun is one-third the distance of the earth. It revolves round the sun once in 88 days with a velocity of 29 miles per second. It is invisible to the naked eye.

The planet which comes next in order of distance from the sun is Venus, commonly known as the morning or the evening star. Its distance from the sun is about two-thirds that of the earth, its size is about equal to that of the earth and it performs a revolution round the sun in 224 days with a velocity of 21 m.p.s. It has phases like those of the moon, which may be observed through a telescope of moderate power.

Next comes Mars, with a diameter of about 4000 miles, distance from the sun being one and a half times that of the earth, revolving round the sun in 686 days with a velocity of 15 m.p.s.

Next comes a large group of small planetary bodies, with diameters ranging from 10 to 500 miles and having periods of revolution varying from 3 to 9 years. These are collectively called the Asteroids and their number is about 2000.

We next come to Jupiter, the biggest of the planets, situated at a distance five times the distance of the earth. Its diameter is 92,000 miles, performing a revolution round the sun in 12 years with a velocity of 8 m.p.s.

Then comes Saturn, with a diameter of 74,000 miles, situated at a distance about 10 times that of the earth, performing a revolution round the sun in 30 years with a velocity of 6 m.p.s. There is a very peculiar object encircling the globe, which is called Saturn's Ring. It is composed of minute planetary bodies and appears as a continuous gaseous substance. It appears to have three distinct layers. The diameter of the ring is 176000 miles and its thickness is about a hundred miles. The planet with its ring has an exceptionally beautiful appearance and can be seen distinctly with a telescope of moderate power.

The planet next in order is Uranus with a diameter of 31,000 miles, distance from the sun being nineteen times that of the earth. It revolves round the sun once in 83 years with a velocity of 4 m.p.s.

The last planet in the solar system is Neptune, with a diameter of 34,000 miles, situated at a distance 30 times that of the earth and revolving round the sun in 165 years with a velocity of 3 m.p.s.

We may thus take the diameter of the solar system as 6,000,000,000 miles.

Besides the planets, there are two other very interesting objects to be seen within the solar system, viz., the shooting star and the meteor. The shooting star is one of a group of small objects which exists in different parts of the solar system and becomes visible to us when the earth's atmosphere happens to come in contact with it. A comet is a far more interesting object. It has various beautiful shapes. It is composed of very fine matter and appear practically gaseous. Some of these move round the sun with varying periods of revolution and become visible when they are near enough. Halley's comet, for instance, appeared in the sky in 1910 and is expected again in 1985.

Many of the planets themselves have planets of their own, revolving round them, just as they revolve round the sun. These are called Satelites. Mercury and Venus have no satelites. Earth has one, viz., the moon. Mars has two satelites, Jupiter has nine, Saturn has nine, Uranus has four and Neptune has one.

After we have reached the boundary of the solar system, we find a huge void and the celestial object nearest to the sun of the earth is the star called Proxima Centauri, situated at a distance 4,000 times the diameter of the solar system. The distance is actually 25,000,000,000,000 miles.

In measuring large distances like these and many others far greater, we require a new scale of length. This scale is determined by the velocity of light. Light travels a distance of 186,000 miles in one second. If light travels at this rate continuously for one year, the distance travelled is $186000 \times 60 \times 60 \times 24 \times 365$ miles or, 6,000,000,000,000 miles nearly. This distance is called a light-year and is taken as the unit of measurement. There are also two other units employed by astronomers, the parsec and the siriometer, the former being about three and a quater times the light-year and the latter about five times the light-year.

The distance of the star Proxima Centauri is about four light-years. Beginning from this distance, there are stars situated at various distances. The brightest star Sirius, for instance, is at a distance of eight and a half light-years. Farthest stars visible through the most powerful telescopes would be about 220,000 light-years distant.

Stars are hot luminous bodies like the sun. They vary very much in size and brightness. Some of these always appear in pairs situated in the same relative positions and are called double stars. Some of them appear to be a pair revolving about each other and are called binaries. There are some which periodically change their luminosity and colour and are called variable stars. To the naked eye, of course, most of them appear all alike.

We notice a belt of cloudy substance running across the sky, which is commonly known as the Milky Way. Seen through a telescope, it will be found to consist of distant stars and not at all a cloud. If we direct our observation in various directions, we find that stars do not happen to be

equally numerous in every direction. Moreover, as we extend our observation farther and farther, their number within any given region appear to be thinning out. If we proceed far enough, we find that the stars are scattered so thinly that in any given field of observation, the number of stars appears to be a hundredth part of what it is in the nearer regions. If we imagine a boundary passing through the parts of the heaven where the stars are so thinly scattered, we get a flattened sphere, such as we get by pressing a boiled potato between the palms of our hands. Such a region is found to have the Milky Way as the greatest circular section, and is called the Galactic region, the Milky Way being supposed to be situated in the galactic plane. The maximum radius of the galactic spheroid is 27,000 light-years and the minimum is 5,400 light-years.

There are certain other objects which appear like patches of cloud to the naked eye and also when seen through a telescope. These are called Nebulæ. They are not only very beautiful to look at, but they are also very important because of the fact that most of the speculations regarding the evolution, constitution and motions of heavenly bodies in particular and of the universe in general, are based on observations of these mysterious objects. Nebulæ may be found in the galactic system; for instance, we can see the nebulae in the constellation Orion on any clear night. But there are nebulae beyond the galactic system—and quite a host of them. These are called extra-galactic nebulae. These have such big dimensions that each of them may be regarded as a universe in itself. For instance, the nebula in Andromeda has a diameter of about 5,000 light-years. The nebulae are masses of a very rarified medium, so much so that 1,000,000,000,000,000,000 c.c. of nebular matter would weigh one gramme. All nebulae and different parts of the same nebula are not always homogeneous, the densities being different owing to different states of condensation, which these are supposed to undergo. The nebulae are of various shapes, and an important class of them is termed spiral nebulae, on account of their spiral appearance.

Clusters of stars are observed to exist at very great distances and some of these are also called star-clouds on account of their cloudy appearance. Some of the clusters have definite round shape and are called globular clusters. These

clusters and nebulae are the most distant objects ever observed. The number of nebulae appears to be about 10,000,000.

There have been quite a number of theories and speculations regarding the evolution of the universe and the formation of the solar system. The most interesting of these is the Nebular Theory of Laplace, according to which the nebulae represent the most primitive state of matter, out of which have grown the star-clusters, individual stars (of which the sun may be regarded as one) and other celestial objects. The planets are supposed to have been once one with the sun and the satellites parts of the planets themselves. The fact that all the planets and their satellites (except a few outermost satellites of outermost planets) move exactly the same way round, lends a strong support to this view. The theory has however been supplemented by other new mathematical and physical hypotheses. According to the nebular theory, nebulae may be regarded as forming one end of the chain of evolution and the other end being represented by cold and rigid bodies like the moon.

Motions of celestial objects, like all mechanical motions on the earth, are governed by the law of gravitation, discovered by Newton about three centuries ago. The phenomena of tides, eclipses of the sun and the moon, sun-rise and sun-set and many others have been calculated with the aid of this theory to such a high degree of precision that the law of gravitation has come to be regarded as an absolute law of nature. There appeared however to exist one or two astronomical phenomena which defied the law. For instance, a certain minute discrepancy in connection with the motion of Mercury could not be explained by Newton's law. There is also a peculiar motion of nebulae which are observed to continually recede from us—a phenomenon difficult to explain. Speculations have been rife, specially since 1915, when Einstein discovered his new law of gravitation, regarding the explanations of these phenomena. Einstein's ideas have revolutionised the fundamental conceptions about space and time, because of the fact that he introduces space and time in mathematical calculations in such a way as if the three numbers representing the position of an object and the number representing the time of observation together constituted a group of four exactly similar numbers, whereas, in older mechanics, the quantity representing time was regarded as quite distinct from those which represented position. This innovation had far-reaching con-

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sequences. The discrepancies mentioned above were explained, at least partially. New and interesting speculations regarding the shape, size and evolution of the universe have sprung up. According to one of these, the universe is continually expanding. Whether it is expanding or not, if it is expanding, when did it begin to expand, what is going to be the ultimate fate and questions of a similar nature are now engaging the attention of scientists and astronomers.

All these theories and speculations must be based on and verified by observations. Naked eye is too weak to see far enough and to distinguish between large distances. To the naked eye, all the heavenly bodies appear to be situated on a blue sphere and on a clear night we may see about 2,500 objects. Telescopes are instruments which are used to magnify our power of vision. An one-inch telescope would reveal about 120,000 stars. The power of a telescope is indicated by the size of the piece of glass in front of the telescopic tube. Since the time of Galileo, telescopes have been constructed in various sizes. The telescope situated on the roof of the Presidency College, Calcutta is a 7-inch one. The telescope of the Kodaikanal Observatory is about the same size. The one at Hyderabad has a 12-inch aperture. The biggest telescope at Greenwich has a 36-inch aperture and was installed only a few years ago. The Lick Observatory of California has a 36-inch telescope, built in 1888, as a substitute for the donor's original intention of investing the money for two statues, one of himself and another of his wife, to be built on the Pacific Coast. The Yerkes Observatory at Chicago has a telescope with 40-inch aperture, while the Mount Wilson Observatory has two telescopes with apertures of 60 inches and 100 inches. The diameter of the space within which objects are visible with this telescope is 300,000,000 light-years. This is therefore the limit of our present-day telescopic vision. A new telescope is now under construction in America, which will have a 200-inch glass. The weight of this piece of glass is about 550 maunds ! It is estimated that it will take five years to polish it properly ! When completed, it is expected to bring within our vision an amount of space whose diameter is 2,500,000,000 light-years !

ILLUSTRATION IN SCHOOLS.

A Lecture delivered by Miss. M. E. Peacock.

Ladies and Gentlemen,

It is a great pleasure to be able to address you in this, the capital city of Bengal. I do not wish to speak to you as an Inspectress, but rather as a fellow teacher, whose experience in the schools makes me sympathise with you in your many difficulties.

You may be surprised at the subject which I have chosen for this lecture, as you may regard it as of little importance. A glance round your exhibition here will, however, show you that the twentieth century has brought with it new ideas as to what the teacher may use in the instruction of his classes. Many visual aids to learning have been introduced. Pictures, charts, models have been brought in to your assistance. In addition the lantern, the epidiascope and the cinema have invaded the school as means of instruction.

I have chosen this subject therefore for three reasons :—

- (1) Because of its importance.
- (2) Because I think that the Bengali teacher has a special artistic talent, which might well be brought more into the service of the schools.
- (3) Because a recent visit to all the Women's Training Colleges of Bengal has convinced me that some of the general principles underlying the use of illustration in schools are not generally understood. I think that training in this subject might well be undertaken in our colleges.

The plan of this lecture is as follows :—

- (1) An explanation of these general principles.
- (2) A brief survey of the use of illustration in some of the main school subjects.
- (3) An allusion to some of the modern means of visual instruction, such as the cinema, and the visual side of broadcasting instruction.
- (4) The question of the use of illustrative material as an aesthetic adornment to our schools.

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First as to the general principles underlying the making of illustrations for class use.

(1) The illustration must be of such a size that even the pupil at the back of the class can see it. This may appear obvious, but it is strange how often it is forgotten. It should be remembered too that extra large pictures are necessary for the use of very small children, whose eye muscles are not strong.

(2) The question of suitable print script requires careful attention. That too must be large and bold, and it is well to use colour for that part of the letter press, which you wish to stand out. An example of this can be found in the English health poster "Where there's dirt there's danger", where the last word is very large and coloured red to focus attention upon it.

(3) The school poster should concern itself with one main point in a subject, and that the point you wish to bring home to your pupils. In short, there should be unity in the conception of your picture, and a mass of irrelevant and distracting detail should be left out.

I would add that Commercial Art can give you very valuable assistance in the making of your pictures. I would therefore commend you to a careful study of the very excellent posters, which your school of Art has produced for this Exhibition.

(4) I think that the aesthetic quality of the picture should be kept to the fore, and that in all possible cases, we should provide for our children something, which has a certain quality of beauty or orderliness.

With these preliminary remarks, I wish to pass on to a brief survey of some different ways in which our main school subjects can benefit by different types of illustration.

Let us first take Science, and, since Nature Study, Hygiene and Domestic Science for girls are the branches, with which I chiefly deal in this province, I will confine myself to these.

I may say at the outset that I consider that the Bengal Schools use far too many text-books in the instruction of the children. Junior classes in such subjects as Nature Study would benefit much more by bright oral lessons given by the teacher, helped by her own pictures. The over-use of text-books is particularly undesirable in Science teaching, where the object is to develop

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the powers of observation of the pupil by actual contact with the realities of life. It is for this reason that I would earnestly ask the rural schools to develop gardening as an aid to Nature Study. If plants are grown by the pupils themselves, different stages in their growth can be recorded by them in pictorial form. In town schools, small boxes may be used for the growing of seeds.

In the case of Hygiene, I cannot help feeling that much of the apparatus demanded by the University of Calcutta for the teaching of the subject for the Matriculation Examination might be made by the students themselves. Charts of the respiratory and nervous systems for instance, could be made and mounted on rollers for future use.

It has seemed to me that many of the health posters in general use in Bengal are hardly suitable for pupils in schools. They are too depressing in outlook, and negative in appeal. Whereas a grown-up person may take precautions against small-pox when he sees the pitiful plight of a patient depicted in a poster, it is doubtful if a small child will do the same. The appeal for a child should be bright and positive. He will respond more readily to a pleasant picture of the clean child than to the despairing condition of the dirty one. In addition I cannot too much impress upon teachers the need for seeing that their schools are examples of the general principles of the subject, which they teach. If a school is insanitary, if it has untidy cup-boards and desks, if the children are dirty and unkempt, then the hygiene instruction has been of little avail. I would suggest the framing of some good health posters in every school. Here I repeat what I have already said. Choose posters which will show the blessed results of cleanliness rather than the dire results of dirt. A bright, jolly little person, clean and ready for school is more forcible as an ideal of what our Bengali child should be and if he be shown such a poster, he is more likely to work towards so pleasant an ideal. When I recently visited your Institute of Hygiene in Calcutta, I was interested to see that you now have some posters of a most attractive quality depicting Indian children.

With regard to Domestic Science teaching for girls, I feel that much profit would accrue if this subject were more extensively taught on practical lines in this province. I would, however, suggest its being based on a sound foundation of Scientific theory. I think that in addition to being able to cook,

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your Bengali girls should know something of food values, and of how to spend to the best advantage the money, earned by their husbands.

While making a survey of the different types of schools in New York, I came across an interesting experiment in the use of posters to aid proper food selection. The teachers had set up a long counter on which were sundry foods suitable for the mid-day tiffin. They included such things as salads, brown bread and butter, whole-meal biscuits, fruit cooked and raw. Above the counter were a series of posters representing in pictorial form the food value of the things, from which selection could be made. The children chose their food with the help of these posters, and were incidentally being led towards a wise selection in later years. So much for Science. Since we think of Mathematics as an allied subject, I will say a few words on the use of illustration in this connection.

It has been pointed out to you during this week that one of the unfortunate things about the Bengal Primary Schools is the number of children who leave after a year or two of schooling. Another weakness is the lack of success in teaching the fundamental subjects or what we call "the THREE RS" Reading, Writing and Arithmetic. I believe this state of affairs could be remedied if our lower Primary Schools were brighter places than they are. There is much infant apparatus displayed in this Exhibition. It certainly is a difficult thing for a small child's mind to pass from concrete 4 mangoes to abstract 4 and I do think that the average child requires pictorial assistance.

In the Junior forms also, I think, that Arithmetic is taught in rather a mechanical way. I would suggest the making by the teacher of coloured charts to illustrate such things as the first lessons in fractions and decimals and early work on areas of squares, rectangles etc.

There is much controversy as to whether Geography shall be regarded as a Science or an Art. I think this uncertainty points to the fact that Geography might well become a pivot subject of our curriculum. To the artist it appeals by the warmth and colour of the human life, which it depicts. To the Scientist it appeals more on the physical side by the scope which it gives for exact measurement and scientific precision.

There is no doubt that it is the subject of the curriculum which lends itself most readily to the use of illustration. Many of the maps in the Exhibition

will give you new ideas on this subject. But of the making of maps, there is no end and the business may well in time become a weariness to the flesh. The makers of elaborate maps often cannot find Italy or England upon them. I would therefore like to make a few suggestions about the use of illustration in Geography.

In the first place I think that it might help us to introduce a senior technique of teaching when a child has reached the age of twelve years, he has developed to a stage where the ordinary methods in teaching youngsters are out of place. From that time onwards, the teacher should seek to encourage him to find out information for himself in some of his lesson periods. He should be taught how to use a small library, how to group his various pieces of information found definite main topics, to be progressive yet at the same time thorough.

There is no longer so much need for the teacher to make the apparatus. I well remember my last visit to what I consider to be the best Geography room in England. The students—boys and girls of about fifteen years of age, were engaged upon making upon large sheets of white cardboard different maps of the world to show the places which grew certain products. Each map had relation to one product only, that is to say there was one map for sugar, one for jute, and so on. There was a Geography library of travel books, statistics, general information. The pupils moved quietly about choosing a book on some illustrations and pieces of information from drawers carefully labelled. The finished maps were community efforts. They were absolutely accurate, they were carried out in a uniform system of colouring. What was far more important, they were based on knowledge, not imparted by the teacher, but sought out by the students themselves.

In the second place I should insist upon the use of collected pictures and information towards well defined ends. Rather than let your children stick pictures at random into a book, give them some definite subject such as the jute industry in Bengal to follow up in the newspapers for several days. Then let them arrange the material well, and supply an original essay on the subject to accompany this with the opening of new Geography rooms in Bengal High Schools. I would urge you not to use them as mere map cupboards, but as a laboratorisor workshops where the tools (books, pictures, magazines) are at

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hand, and where your students come in to use them to definite educational purpose. The railway companies of Calcutta have, I find, many helpful posters, which you can obtain, for prices not exceeding 8 annas in most cases.

I wish, for a brief interval, to discuss the place of illustration in language study. Both with Bengali, the mother tongue, and with English, the main other language taken, there is much room for further practice in conversation and oral work generally. Conversation pictures are not as popular as they were formerly but are a means of instruction, which I think we might well revive.

It seems to me that an ability to speak clearly, pleasantly and intelligently should be more carefully cultivated in Bengal schools. With regard to English, I would say this. It is a language, which unlike Bengali, depends on stress of words to make itself intelligible. I have used with advantage in schools a number of charts, which I made up myself to help with this matter, in teaching Maori children in New Zealand to speak English. The stressed words (nouns and verbs usually) are shown in red. Reading practice is given from these charts.

Phrasing is another difficulty. It is hard for some one learning to read for the first time in another tongue to observe correctly the stops as indicative of the meaning of sentences. I have used other coloured charts to assist in this matter.

Turning now to the more practical subjects, I should like to say something about Physical Training. In its new syllabus for this subject, published in 1933, the Board of Education in England have deemed it necessary to issue also a series of excellent photographs, which show boys and girls enjoying the various exercises and games. Many Primary and Secondary Schools have these photography framed and hung in the Gymnastic Halls. It is a tribute to the power of illustration that the pictures give more vividly the new spirit of that syllabus than the book itself though I strongly recommend the latter to you as a mine of valuable information.

Since I am concerned mainly, in my work with girls' education, I wish to say a little about Needlework and the use of illustration in connection with it. Since coming to Bengal, I have been delighted by the exquisite fineness and delicacy of the Needlework produced by your girls, by their sensitive

appreciation of colour and their careful execution of intricate patterns. I feel, however, that here again we might now begin to develop more initiative and originality. I would suggest two ways of doing this. In the first place, I should by class room illustrations show the girls some of the fine old patterns, for which India is justly famous. I would withdraw those illustrations, and then ask the girls, on the basis of what they had seen to draw out first on paper and then to execute in Needlework some original design of their own.

Secondly I think that every girl should be able to cut out, and make for herself a complete set of garments when she leaves school. For this purpose large illustrations of the main patterns in contrast colours in paper might well be used by the teacher.

In many schools, Poster work has become quite a feature of the Art Training. It would seem to be a useful branch, since it might lead the student on to the more definitely vocational work of Commercial Poster Painting. For the student, who will afterwards take up teaching, it is also a useful acquisition. Would it not therefore be better to experiment with the real materials of the Poster maker? Poster paint is sold in powder form at all the main Art shops. It is easily mixed, reasonably economical, and produces a far smoother result than either water colour or oils.

If, however, Poster work is to be developed, the earlier training of our Bengal pupils must be changed. Suitable materials must be supplied at various ages. Thick coloured chalks are suitable for infants who cannot adequately control pencils at an early age. Paint and charcoal are useful also. Large sheets of paper giving free arm movements are preferable to small drawing books. The paper can often be the cheap brown stuff bought at the bazaar.

But with the choice of suitable materials, I would urge also that further opportunities be given to pupils to depict the life of the world around them. No country could provide you with more colourful scenes than does your own land of India. There are the gay and beautiful saris of your women, the brilliant reds, blues, saffrons and purples of your boat sails. There is the flaming glory of sunrise, and the rich rainbow hues of sunset. Flowers and fruits of a myriad bright colours grow in your land. The tiny shops of the bazaar are gay with scarlet chilis, golden oranges and more sombre green

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fruits. Encourage your children to depict these scenes more freely and you will have material to draw from when you start poster work in real earnest.

I should briefly like now to indicate some of the effects of modern inventions upon the question of illustration in schools. As you all know, New York is a rich city with a mind to spend its wealth on education. For that reason you find many cinemas in the schools themselves. I was particularly interested in a lecture on the growth of various plants given at the George Washington High School in New York. Using a film, a member of staff lectured to the mixed class and afterwards the girls and boys conducted a spirited discussion on what they had seen.

England has fewer school cinemas. An elementary school at Barnsley in the north secured one just before I left, but the usual practice is to take pupils to the local cinemas when a suitable educational film is presented. Bengal has adopted this plan and I hope will develop the matter further.

In English High Schools use is made of an epidiascope, which in a hall of moderate size will show pictures in books, post cards, newspaper cuttings in large size on the screen.

It may interest you to know that broadcasting in schools in England leaves a definite place for illustration. The British Broadcasting Company has many different courses running for schools and nearly all big Primary and High Schools are now supplied with wireless sets. Booklets, excellently illustrated with photographs, explain the course. These can be purchased for about one anna. Each member of the class has one copy to study. The teacher also prepares the class by pictures and diagrams and also a short talk for the wireless lesson that follows. I trust that your Calcutta Broadcasting Station may be able still further to develop its broadcasting work for schools.

In conclusion may I ask you to consider the aesthetic value to the child of having one lovely picture or work of art in the class-room. Far be it from me to suggest that the walls be plastered with the immature work of the pupils. The task of securing pictures is more difficult than it is in England, and I would suggest that there is an opening for an enterprising firm to produce cheaply for schools some of India's wonderful works of art of both ancient and modern times. Until that is done, one of the main cheap sources of illustrative material is the railway companies. Some of the posters reach a

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high standard artistic merit. I would suggest that if you could call at the offices of these companies, you would secure cheap material for your use. Pleasant, cheerful surroundings make a vast difference to the outlook of the child and have an appreciable effect upon his work. I can well remember during a short experience of teaching in the London Slums what a pleasure it was to walk in from the drab and smoky streets to enter a school bright with pictures, culled from many different parts of the world.

Similarly I have noted with pleasure in England, America and Australia the aesthetic beauty of the interiors of the childrens' libraries. Here paintings and mosaic pictures are placed specially low so that the children can see them. Attractive posters explain to the children where they can find the tales they seek or lead them into the delightful intrecacies of how to make a wireless set. I am glad to hear that money will in the near future be forth coming for the creation of village libraries in Bengal. I hope that you will see to it that they too are places of beauty where reading can be a pleasurable recreation.

In conclusion I would say that in this lecture I have tried to touch upon some practical points which I felt might prove useful to you. You are members of a dignified and worthy profession. Your country of Bengal has beauties and possibilities, which should make you proud to belong to it. In former lectures during this Education Week, various speakers have exhorted you to maintain and extend what you already possess. Mr. Stapleton has asked you to preserve the magnificent buildings and art treasures which speak to us so plainly of India's great past history. Mr. Buchanan opened up to you vast possibilities of improving the physique of your youth. Doctor Sen showed you yesterday the importance of stirring up the curiosity and interest of the pupils in the world around them.

I join them in this exhortation. In speaking of great literature one of our writers spoke, I believe, of a tale that could lure children from their play and old men from their chimney corner. I ask you by means of illustration to lure into your class room the beauties of your land.

I ask you not to be discouraged in your task. You are the builders of a new India. Believe me when I say that you have much excellent material among the girls and boys of Bengal.

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See to it that the foundations of your educational system are well and truly laid. I wish you every success in this honourable work and I thank you for your gracious and patient hearing.

THE NEW MATRICULATION REGULATIONS OF THE CALCUTTA UNIVERSITY.

By PROF. SUNITI KUMAR CHATTERJI.

Mr. President, Ladies and Gentlemen,

Educational changes such as are contemplated by the new Matriculation Regulations of the University of Calcutta are fraught with immense significance, as these will form a turning point in the history of education in the province. The entire youth of a land of over 50 millions will have, for some decades at least, its schooling guided by the principles and methods adopted and proposed in the new scheme. Certain innovations which are newly brought in, and certain restorations in the course, will shape the mentality and the capacity to endure in life's struggle of the younger generation for some time to come. The best brain of Bengal deliberated over the matter for over a decade; and the recommendations, finally accepted by the Government, were arrived at after a long and careful discussion of educational and other problems of the country by persons who are equally familiar with the situation in Bengal and in most other civilised lands. Nevertheless, accustomed as we are to move in grooves and in our narrower spheres to jog on in blinkers, we would hesitate before acclaiming anything new, even though we are not feeling very happy in our present situation. We would not like to fall into the fire out of the frying pan.

I am glad that the Working Committee gave an hour for the discussion of the New Matriculation Regulations before what may be called the biggest gathering of teachers in the province. This is a matter which concerns them vitally: for our colleagues in the high schools (and in the middle schools as well) will be responsible for the proper working of the new scheme, the success of which will depend very largely upon their exertions—their co-operation and enthusiasm. It is therefore proper that the pros and cons of the new scheme be discussed once more in a gathering where they are present.

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I understand that representative bodies of the teachers of Bengal had occasion to give their opinion on the new regulations on previous occasions, and this opinion, inspite of certain misgivings in some quarters, has on the whole been favourable. Personally, I am very glad for that, for I feel that the change in the Matriculation course and examination as proposed by the new scheme will be of the greatest benefit for the people of Bengal, as it will help to rehabilitate the youth of the country in a sense of seriousness and responsibility and will make their school education a factor for good in their lives. In my survey of the situation I shall confine myself only to the subjects for study and examination as fixed by the new regulations and to the institution of the vernacular as the medium for instruction and examination. These two form the vital points in the new scheme; there is another matter, which will be regarded as less vital, and that is the provision of a set of special subjects which girl candidates can take up if they wish to do so. I shall take up these three subjects—viz : (1) Subjects for Examination, (2) Vernacular Medium of Teaching and Examination, and (3) Special Subjects for Girls—one after another.

(1) *Subjects for Examination.* In this matter, it will be best to confine our attention to the "Major Vernacular" candidates, as these will form by far the largest percentage of students who will prepare for and take the Matriculation Examination. The subjects they must take up are the following :—

(1) Vernacular	...	...	2 papers	...	200 marks
(2) English	...	...	2½ papers	...	250 marks
(3) Geography	...	...	½ paper	...	50 marks
(4) History of India and History of England	...	...	1 paper	...	100 marks
(5) Mathematics	...	...	1 paper	...	100 marks
(6) A Classical Language or Equivalent Language	...	1	paper	...	100 marks
(7) Elementary Science	...	1	paper	...	100 marks
(8) An optional subject in Science or Art	1 paper	...	100 marks

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7 subjects, involving 9 papers carrying 900 marks, will be compulsory for all; the better type of students will be able to take up 8 subjects, with 10 papers and 1,000 marks.

As against these, candidates now take up the following subjects :

(1) English	...	...	2	papers	...	200	marks
(2) Vernacular	...	...	1	paper	...	100	marks
(3) Classical Language		...	1	paper	...	100	marks	
(4) Mathematics	...	...	1	paper	...	100	marks
(5) & (6) Two more subjects from		the following list	...	2	papers	...	200	marks :—

History ; Geography ; Additional Sanskrit ; Additional Mathematics ; Mechanics.

7 or 8 subjects as against the present 6 ; 9 or 10 papers involving 900 or 1,000 marks against 7 papers with 700 marks. This appears like making the Matriculation course a little heavier. How will a tender boy or girl of 15 or 16 be able to manage so many subjects? One would be apt to be moved with pity, and to condemn the new regulations as tending to make school education more complicated and more bookish.

But there is the other side of the question. The new course appears rather heavy—only because it is going to replace something too light. The present Matriculation course has been in the field for over a quarter of a century, and all persons who have anything to do with higher education in Bengal will admit that it has not served its purpose in giving the youth of Bengal a training in the fundamental things a high school boy ought to know. Under the present regulations, it is possible for a boy of 16 to come to the University without ever having studied Geography seriously, and without having the slightest notion of elementary science. The course in a classical language is so framed that ability to translate passages from prescribed texts in the language into English can get a pass to a candidate. What little the candidate can learn of other subjects is vitiated by the fact that English is the medium of instruction and examination. The text-books are heavy, and the foreign language is an impediment. Optionally, the history paper can be taught and examined in the vernacular, but vernacular training in this

is haphazard and never thorough, as the students still feel like being at the cross-ways.

The present course for the Matriculation was framed, it would appear, with an eye more to specialisation in the higher University stage than to the requirements of a young man who must have a little general education before he can take up a profession requiring a certain amount of literary culture and general information—a profession which need not be attainable only through the University. The present course forces all candidates to keep in front of themselves the University—its arts or science courses—as the goal. The Matriculation examination is a school final examination—there is nothing in the province which can be taken as its equivalent; and when the entire youth is prepared for nothing else except the highly specialised courses in the University, it is bound to give rise to many undesirable results.

We should frankly accept the position that University education is not for all and sundry. The new regulations aim more at giving a liberal dose of general education fitting the adolescent for their duties in life. It is practically a restoration of the old courses of study which prevailed before the current Matriculation regulations came in. The previous course had English, a Classical Language, Mathematics, History of India, History of England, Indian Administration, Geography, and Elementary Science—8 subjects distributed over 600 marks, with Drawing (100 marks) as an optional subject. Those of us who have passed through the old regulations have signed for its thoroughness in the range of subjects taught compulsorily, and each of these was necessary for elementary culture.

The New Regulations have done well in restoring these essential subjects. They have added a close study of the mother-tongue (200 marks) as a necessary subject : this has become doubly necessary as the medium of training and examination is now the vernacular. A grasp of the mother-tongue is a sure aid to the acquirement of a foreign language, as it is for the better understanding and assimilation of the subjects taught through it. Then, again, a higher standard is sought to be maintained for English, by making it a major subject with 250 marks. English we cannot neglect, and mainly for this reason, that it is the great vehicle of world-culture, of present-day civilisation, and it forms the indispensable channel through which we can get light and air

from outside for the growth of our intellectual and cultural life. Geography does not need any apology ; the optionalisation of geography was perhaps the most powerful condemnation of the present regulations. History of India is a subject of first rate importance for the Indian student ; and the History of England forms for him an epitome of that of Europe as well as an object lesson in the growth of modern institutions which no future citizen can afford to neglect. The present is built upon the past ; the classical languages embody this past, they give an expression to the ideals which the communities largely keep before them ; besides, they act as feeders for the vernaculars, and some acquaintance with them should be required of those who finish the high school. Those who do not feel drawn to a classical language, or find it too difficult, can take instead a modern European language other than English, or a modern Indian language other than the mother-tongue. And no one will disapprove the inclusion of Mathematics and Elementary Science. The extra optional subject will be taken by the more intelligent students and will be a preparation for specialisation in the University which usually these students will join.

The new course will thus afford an all-round training for the students and at the same time it will put their powers to the test. The present course has been described as being too easy ; certainly, easy it has been, compared with the old one, and hence the tradition developed of easy passes in it. The New Regulations, it may be hoped, will remedy this.

For the rank and file, a high school education, with the Matriculation as a school final examination, is quite enough to carry them through life. This should be as solid as possible. A University education all cannot afford ; and all who pass the Matriculation need not come to the University. The rush for University education through the wide open portals of an easy Matriculation examination has led to an abandonment of many an honest and perfectly respectable (if less exalted) profession or trade by the young men of the middle and lower middle classes, even when they do not possess the proper brains for a University career. From the New Regulations, we can expect to have a better all round training, involving a certain amount of real application to study : a training, which, because it will be imparted through the mother-tongue, will be better assimilated, and be more useful in life, apart from the requirements of the University.

(2) The next point is the establishment of the Mother-tongue as the medium of teaching and examination. This has given rise to some misgiving. But there is no justification for this misgiving, and I think it is largely due to an idea which is not yet dead amongst us, viz. that a knowledge of English is the be-all and end-all of education. The high prestige of the Imperial tongue has so long dominated most other studies. I need not enter into the genesis and the development of the idea; but it is a century old one, and will take long to die. It would be quite a novel line of thought for many people to connect the vernaculars with higher education. But I think that too early application for the acquirement of English has been injurious, on the whole, for the intellectual life of our students, of course, we have had very brilliant students—but they have risen to distinction inspite of the system. I think the opinion has been definitely expressed by those who have studied the question that bilingualism early in life is bad—it arrests normal mental growth. It is quite a different thing to learn one or two foreign languages along with one's mother-tongue from trying to adopt a foreign language as one's own and to make it the main vehicle of one's self-expression. The second alternative is the goal we have so long been striving for in our Indian Universities. If we had ruthlessly suppressed the mother-tongue, it would have ultimately resulted in English being our sole language. But we have developed a feeling of love and pride for our mother-tongue—we offer it, at least in a sentimental manner absolute homage which will not brook a rival in English. As a people, we are in a dilemma. In a situation like this, when sentiment and convenience both favour the mother-tongue, the issues are clear. Make the mother-tongue the basis of education, teach it properly, and in this way make the acquirement of information easy, bring in a sense of self-respect in the mind of the student, and, incidentally, develop the latent powers of their mind. The acquirement of a foreign tongue will become easier when it is taken up in due course. Experience has shown that it is so. I have found in England young Yugoslav and Rumanian and Russian students trained in their own languages, with just a smattering of French or German and Latin, and no knowledge of English, pick up enough English in three months to be able to attend their class lectures in English, and generally to carry on in their daily life in England. What has been true of continental European students can be ex-

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pected to be true of our students also. At any rate, from this point of view, the experiment is worth trying.

Concentration of education in English has created an English-knowing caste which is cut off from the rest of the people. The benefit of education could not filter down to the masses because it was all sealed in a foreign language. No books of information were written in the vernaculars which could address the masses outside the schools and colleges too. With text-books on all sorts of sciences in the vernaculars a rich storehouse of knowledge would be opened up for the people. Want of familiarity with English would then no longer be a disqualification for education.

Fortunately, the University is alive to the needs of the situation. To make the writing of intelligent and intelligible text-books easy, it has established a Board for Technical Terms in Bengali, which is proceeding with its labours in an admirable spirit. Bengali, Urdu, Hindi and Assamese are the four vernaculars which have been given the status of a major language for teaching and examination. Assamese has to be included, because Assam is under the University of Calcutta. Urdu is allowed because of Musalman sentiment, although Bengali is the mother-tongue of all but a few Mohammadans in the province. For Urdu, the technical terms prepared by the Osmania University and the text-books published by that institution are ready. In framing technical terms in Bengali, the aim which the Board has kept in view primarily is intelligibility : consequently we are having a set of terms which would be understood without difficulty by all who read and write standard literary Bengali. Situated as we are, Bengali finds it easier to assimilate words of Sanskrit origin than those from any other source ; such words will be understood by Hindu and Musalman students alike. Of course, to suit Mohammadan sentiment the Bengali language should be prepared to welcome a considerable addition to the 2,500 Persian and Arabic words which are already in the language as naturalised words. But these new words from the very nature of the case to be in connexion with the Islamic faith and its traditions, usages and ideology and in connexion with Islamic culture. However, that is a separate topic altogether. In a matter like this, each community should take as its guide the example of its *intelligentsia*; and the

Mohammadan *intelligentsia* of Bengal has in this matter given its verdict,—it is averse to splitting up the common Bengali language on communal lines.

Those who are apprehensive that the learning of English will suffer, and consequently Bengal will lag behind other provinces of India in matters of all-India import where English will be employed and not a vernacular, should recall that the new regulations contemplate giving greater stress on English—the test will be stiff enough, and the number of papers has been slightly enhanced.

Any practical difficulties which may arise in making the vernaculars the media of teaching, e.g. the conflict of languages in a school, will be easily solved by a number of provisions which foresee them in the Regulations as proposed. Moreover, we should be prepared to meet them as they arise.

(3) I now come to the third point. This need not detain us long. Objection has been raised in some quarters that a differential treatment has been meted out to the girls by giving them a slightly different course from the boys. The objection came from some ladies who wanted girls to have exactly the same curriculum as the boys. Well, this is one view against another. There are a good many people who think that girls should have a different system of education altogether; failing which, their curriculum should take note of what are believed to be their special temperament and special needs. Economic difficulties, which are mainly responsible for our young men becoming averse to marriage, are certainly creating a new situation in our society. Formerly, there was no careerism among our girls when every young man took marriage as a matter of course. Even now in most countries, including the most advanced ones of Europe, a good marriage is looked upon as the best career for a woman. This is talking in a non-sentimental way—but perhaps the heart's desire of every true woman is to have a husband and a home, as much as it is that of the average man to marry and settle down. A great many girls will be given away in marriage; and their fathers and husbands might desire a form of education in which womanly accomplishments and domestic efficiency which are not needed for an average boy should have a place. It is to accommodate people with such ideas that certain alternative courses the selection of which is purely optional have been prescribed. Those who so desire may give a girl the same education as boys; but others might prefer

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their girls to know a little music or to acquire some proficiency in drawing and painting, or sewing, or the culinary art, while at school ; or to know some domestic science instead of a full course in Mathematics, including Algebra and Geometry which do not have any great place in actual life. I think there is no case for objection to these special alternative courses for girls.

Viewed dispassionately, with the various factors in the life and society of Bengal being taken into consideration, the new Matriculation Regulations will appear to have been conceived wisely, and cannot but be beneficial to the young men and women who will come under its operation. Let us all put our heart in the matter, and try to make this great experiment a success—to the all round improvement of the rising generation of Bengal.

NEW MATRICULATION EXAMINATION REGULATIONS.

By DR. P. NEOGI.

VERNACULAR MEDIUM

The new regulations for the Matriculation Examination mark an important epoch in the system of Secondary education prevailing in Bengal. For the first time in the history of educational development of India, excepting perhaps in the Osmania University of Hyderabad, where all subjects up to the highest standard are taught in Urdu, all subjects including Science subjects are to be taught and examined upon in the Vernacular of the country. Fortunately for Bengal it possesses only one major Vernacular namely Bengali so that parallel bilingual classes will not be required in most schools. Assam is still under the Calcutta University where two major Vernaculars viz. Assamese and Bengalee are prevalent, and in her case I am afraid most schools will have bilingual classes. Urdu, Hindi and English are the major vernaculars in the case of only a few special schools and parallel classes teaching different subjects in these schools will not also be necessary. At any rate the experiment is worth attempting, and it is a matter for congratulation that contradictory and vacillating opinions and evidence given before the Sadler Commission have been hushed into silence and the new experiment is being ushered into existence with the largest amount of agreement of official and non-official opinion and amidst universal expectation of unalloyed good to the educational progress of the country. As regards teaching Science subjects in the Vernacular, scientific nomenclature had already been formulated by the Nagri Pracharini Sabha, Bangiya Sahitya Parishad and other learned bodies and their efforts have recently been co-ordinated by the Calcutta University, and I entertain not the least doubt that instruction and examination in Scientific subjects in Bengalee will be quite practicable at any rate up to the Matriculation Standard.

The curriculum for the Matriculation examination has undergone a large amount of expansion owing to teaching being conducted in the students,

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vernacular. It is admitted on all hands that the existing curriculum was too narrow in scope and that specialisation was attempted at too early a stage—these were the two principal defects of the present Matriculation course. These have fortunately been remedied though to a partial extent. History and Geography have been made compulsory subjects and Science has been deservedly introduced at this stage. The study of English has not been neglected and as many as two and a half papers have been allotted to its examination, though many would be satisfied with two papers only.

SCIENCE SUBJECTS

The University, however, has not still been able to shake up completely its inordinate predilection for specialisation at so early a stage and has ordained that Additional Mathematics, Mechanics and some other subjects would be optional subjects for study whilst Hygiene and elementary Physics and Chemistry and elementary Biology would also be optional. There is, I am afraid, discernible in the list of optional subjects a radical confusion of thought in the fundamental principles which should guide the formulation of curriculum for the Matriculation Examination. If the aim of education is defined and justly so, as knowing "something of everything and everything of something", the Matriculation standard should be so framed as to teach the young learners something of everything leaving the task of teaching everything of something to them in the higher University standards. Judged by the standard Elementary Physics and Chemistry, Elementary Hygiene and Elementary Biology should be compulsory subjects in the place of the milk-and-water curriculum of Elementary Science. If I had any hand in the matter of framing these regulations I would have reduced half paper from each of the two subjects of English and Vernacular and given them to Hygiene and Biology which should be matters of compulsory study. I would revise the curriculum thus :—

1. Vernacular	...	...	1½ papers instead of 2.
2. English	...	...	2 papers instead of 2½.
3. Classical language or Second Indian Vernacular	...	1	paper.
4. History of India and England		1	paper.
5. Mathematics	...	1	paper.

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6. Geography	$\frac{1}{2}$ paper.
7. Elementary Physics and Chemistry			1 paper.
8. Elementary Biology	...		$\frac{1}{2}$ paper.
9. Elementary Hygiene	...		$\frac{1}{2}$ paper.

I would omit what has been described Elementary Science which will be unnecessary duplication of studies if the other Science subjects are included and also practical work in Science subjects at this stage. I would thus keep the number of papers practically the same as proposed but would include all necessary subjects for first study in the curriculum. I am afraid there is very little scope for option or specialisation at the Matriculation stage.

VOCATIONAL SUBJECTS

Let us now examine what the University proposes to introduce as vocational branches of study as demands for such studies are so insistent. It has almost been universally acknowledged that the greatest weakness of the present system of University and secondary education is that it is entirely literary in character wholly divorced from vocational training. The University has apparently felt the force of this criticism and has appended a list of handicrafts such as agriculture and gardening, carpentry, smithy, Telegraphy and a few other subjects, but only stipulated that all schools should have arrangements for teaching at least one of these subjects to the students for some time. I am afraid this does not go far enough. There should be a harmonious blending of the literary and the vocational training of both the head and hand of the Matriculate. Out of about 14 thousand students who annually pass the Matriculation Examination barely half goes to the University for further training and the other half migrates to business or other careers. Let us teach them some vocation as well as dignity of labour at the Matriculation stage so that he may earn an existence by his vocation if he chooses not to go to the University for higher degrees. I would make, in addition to the compulsory subjects mentioned above, one of the following vocational subjects also compulsory for the Matriculation Examination :—

- (1) Agriculture and Gardening ; (2) Tailoring and Sewing ; (3) Carpentry ;
- (4) Smithy ; (5) Telegraphy ; (6) Wireless ; (7) Shorthand and Typewriting ;

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(8) Book-keeping; (9) Soap-making; (10) Dyeing and Calico-printing;
(11) Photography; (12) Electro-plating.

The list can be added to as opportunities for teaching vocational subjects increased. The subjects should be taught almost exclusively in a practical fashion, the theoretical portion being taught in a most elementary manner. This initial vocational training will enable a large percentage of the passed Matriculates either to enter professional careers or to qualify for higher professional education without entering the Universities.

PHYSICAL EDUCATION

The Regulations make no mention about physical exercise of boys and girls, but it is well-known that most of our schools would not undertake any responsible work out of their own free will unless and until compelled by the University. As a matter of fact, very few schools actually entertain the services of a games teacher or possess playing fields. The result is that most students in the adolescent stage of life do not develop stout or robust physique. The Regulations should therefore insist on proper provision in every school for regular physical exercise for boys and girls as well as playing fields and also on the entertainment of a qualified games teacher. The days are gone when a school merely meant a building and a few chairs and benches. Newer ideas have since grown and the development of the body is now considered everywhere as much an integral part of education as training of the intellect. The University should take a lead in this matter in insisting on the provision of proper physical training of the boys, and if possible, of girls as well in whose case the need for such training is even perhaps greater on account of the existence of the purdah system.

RELIGIOUS AND MORAL INSTRUCTION

The University regulations are totally silent on this very important, and in the opinion of some, perhaps the most important, aspect of secondary education. Our schools make provision for teaching all manners of subjects excepting perhaps the scriptures of the religious faiths of the boys and girls. I once heard a famous European missionary say that "in Europe, the school and the chapel are inseparable as the husband and wife." In India, these

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are poles asunder. Why should this always be so? What prevents the University from tackling this very important problem? Imaginary difficulties should not deter the University from pursuing this all-important ideal. That education can never be complete without religious and moral instruction goes without saying. An educated man must know the scriptures of his religious faith. Missionary schools teach the Bible. Why other schools, excepting perhaps Government schools, cannot teach Hindu scriptures to Hindu and Mohammadan scriptures to Mohammadan boys, pass my comprehension. The school pundits and maulavis can easily do that. No great expenditure would be necessary. In addition same form of universal prayer and moral instructions may be easily introduced. Public opinion specially amongst the Mohammadan community is steadily setting its face against the existing system of what is called "Godless education". The regulations should and must provide that proper arrangements must be made in every school in teaching all boys and girls scripture of their own respective religions as well as for importing non-sectarian moral instruction. Selection of scriptures for teaching is not, I submit, an insuperably difficult task.

GIRLS' EDUCATION

Opinions do not differ at the present moment as to the fact that girls' education should in the secondary stage be fundamentally different from the education imparted to boys. At any rate two parallel systems should exist, one for the majority of girls who are generally married before or immediately after the Matriculation stage and the other for the few who would enter the University for higher studies and professional degrees. The first category includes not less than 90 per cent of our girls and whilst it is doubtful if the second category constitutes barely 10 per cent. The new curriculum indeed has taken note of these differential requirements of our girls and has prescribed Arithmetic and Domestic Science and Hygiene as an alternative subject in lieu of Mathematics and has included Sewing and Needle-work, Music and Painting as optional subjects. I would like the University to go still further and ask them to make Maternity and Child-welfare as compulsory subjects of study and Nursery and some vocational subjects as optional subjects. The aim in imparting secondary education to girls should be to train them up in such

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a manner as to make them ideal wives and mothers in the future. That is the natural and inevitable destiny of the very large majority of our girls, and their education should not be sacrificed to the needs of a very small fraction of our girls who would aspire for higher degrees. I do not for a moment under-estimate either the necessity or desirability of having women graduates, scientists and leaders of thought in our country—far from it indeed, but I do contend that a dual system must prevail to minister to the needs of the two classes of girls whose future destinies would be so fundamentally different.

THE PLACE OF ADULT EDUCATION IN THE EDUCATIONAL SYSTEM IN BENGAL.

By MR. A. N. BASU.

Perhaps some of you may have wondered how the subject of adult education found a place on the programme of the Education Week which is concerned mainly with school education. In this audience mostly consisting of teachers there may be some who may have had the experience of seeing their efforts frustrated and hindered because of the unsympathetic and uneducated parents and who, like me, may have at times felt that we must educate the parents before we could educate the children. This, I venture to believe, is no uncommon experience. This education of parents is a form of adult education. Herein then lies the justification of discussing the problem of adult education in a conference which may be directly concerned with school education only.

If then, as I have already said, we need the co-operation of educated parents for fulfilling our duties to the youth of the nation we need the co-operation of the public at large all the more for the same purpose. We may adopt the best and most up-to-date methods, latest educational devices, but all our efforts will be of no avail if we cannot enlist the sympathies of the masses who are in more than one sense, our masters. For let us be humble and admit that our schools are only one of the many instruments of education and that we have the charge of our pupils during a few limited number of hours in the day and for the rest of the day, these pupils are left to their homes and among the masses. If co-operation is lacking in these homes and from the people there is every danger that our best efforts would prove fruitless. An enlightened public can change the face of a country as nothing else can.

There was a time when the means of communications were few and meagre and a country was merely a conglomeration of scattered and isolated communities. In these days "the public," as we understand by the term, hardly existed. But things have changed very rapidly in the course of the

last few centuries. The world and with it every country has become smaller; space has shrunk, communities have become organised and closely knit together and a new force has emerged in the political life namely the public. Every state to-day has to depend to a large extent on the direct or tacit consent of this new force in the political life of the country. Every state to-day must in someway or other enlist the sympathy of the public or must state its stability by allowing itself to be ruled by the mob. To-day as at no other period in the past government must depend on the consent of the governed. This is true not only of the democratic countries but also of states where the dictatorial system is in existence. Now enlisting the sympathy and consent of the people is another name for educating them and that is adult education. Thus the importance of adult education is derived from political considerations too.

Thus we see that the movement for adult education owes its origin to the growth of the democratic spirit (I use the phrase in the widest sense) creating the constant need of presenting complex political problems in an intelligent form to an intelligent public. The remarkable growth of the national spirit attended with ever widening sphere of state action in the economic field has given a great fillip to the movement. State-mindedness has become a vital necessity whether the state is governed by parliaments or by fascist or communist dictatorships. In our daily lives we can no longer ignore the theoretical and technical discoveries of science. Hence has arisen a necessity of popularising science among our adults. The world economic depression and the consequent ever-growing realisation of the need for Planned Economy also make adult education an imperative necessity.

Then there are the social considerations. Adult education in countries where it has been properly organised, has been a potent influence in the social regeneration of a people. In fact in Denmark, a country famous for its adult education system, it was first undertaken not from political or economic considerations but as a measure of social uplift; and those who know will tell us how wonderful its influence has been in bringing about a cultural regeneration of the Danish people. This social problem has also been tackled with remarkable success in England and elsewhere. Perhaps some of you may have heard of the Settlement Movement which originated from the Toynbee Hall, in the slum quarters of London. This movement has spread far and wide and

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institutions similar to the Toynbee Hall have been founded in many countries in the world. These institutions have brought a new message of hope and light to thousands of men and women who otherwise would perhaps never have realised the beauties and greatness of human life.

For an example how adult education has helped and can help in the economic rehabilitation of a country we have to turn our eyes again to Denmark. Every student of Economic History knows to what extent Denmark owes her present prosperity to the Danish Folk High Schools.

Adult education has yet another function in the cultural life of a people. In many countries like India elementary education is not compulsory ; in others the organisation of elementary education has not yet been placed on a sound basis. In all these countries adult education becomes necessary to "make good" the defects of early education. In India specially owing to the very unsatisfactory way in which primary education has been organised in the past the need for re-education is great. Every one knows of the appalling wastage in our system of primary education and the problem of relapse into illiteracy.

In the case of India just now there is an additional reason for organising adult education on a proper basis. You all know that in a year or two the new constitution is going to enfranchise 35 millions of people in this country. This is a significant fact and it gives rise to the important problem of educating these millions of voters. It cannot be denied that in the present highly unsatisfactory state of primary education in India there is a great danger of an unintelligent exercise of vote on the part of millions of these illiterate voters. It is a trite saying that the vote is right as well as a duty. An unintelligent exercise of the voting power may not only endanger the state but along with it all the socio-economic and educational institutions in the country. Democracy in India cannot wait for universal primary education. Means must be devised therefore for imparting education to the adult masses of India in order to equip them for the manifold duties of modern citizenship.

From what I have already said you will realise the urgency of the problem for us. There cannot be the least doubt that our future national well being will depend to a large extent on our successfully organising a sound system of adult education for the masses of our people.

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Here you may very well ask, "what have we as teachers got to do with adult education? Our hands are already full and we have no time to spare." True, you have already been over-burdened with duties and you have hardly any leisure. But some one must take up the cause. It cannot wait. In Italy and Soviet Russia the State has come forward and accepted the responsibility for organising adult education. In other countries in the West voluntary organisations have taken up the task and the State has extended its liberal patronage. The remarkable growth of adult education in these countries has conclusively shown what voluntary association can do in this direction.

It is interesting to note that the best workers of these voluntary associations have been mostly teachers. The pioneer of extra-mural activities, was a teacher. The present President of the World Association for Adult Education, Dr. Albert Mausbridge, was at one time a teacher. Teachers have every where been the pioneers in these fields. They have always taken up the task when others have laid it down because it was heavy, because they had other calls to answer, other gods to serve.

In our country too perhaps because others will not come forward we the teachers will have to take up the cause. To us is given the task of building a new and better order of society. This has been the challenge thrown to us in every age. Shall we, in our times, accept the challenge or shall we plead that our burden is already heavy and that we cannot bear to accept further duties?

परमाणुर-नृत्य

श्रीचारुचंद्र उष्टोचार्थ्य

‘स्त्रिया’ ‘निश्चल’ प्रत्यक्षित करयेकटि कथा अभिधाने आहे। कथागुणिर माने अभिधाने देवया आहे, से माने आमरा बुधि एवं साहित्य, विज्ञाने दैनंदिन कथावार्ताय से कथागुणि आमरा व्यवहार करिया थाकि। जीव हीते जडके आमरा पृथक करि ये सकल निर्देश घारा ताहार मध्ये अधान हील एই ये जड स्त्रिया, निश्चल।

बर्तमान युगेर विज्ञान वलितेहे ये भ्रांते ‘स्त्रिया’ ‘निश्चल’ वलिया किछु नाही; पदार्थेर प्रति कणा चक्षल, तौषण भाबे चक्षल; सूतरां स्त्रिया निश्चल प्रत्यक्षित कथागुणिके अभिधान हीते एकेबाबे मुहिया फेला याईते पारे।

किस्त विज्ञान ए कथा किऱापे वले? ऐ तो विराट हिमाचल स्त्रिया अटल भाबे दाढ़ाइया आहे; समुद्रेर जल चक्षल, किस्त पूळरिणीर जल तो स्त्रिया; वाहिरे झड वहितेहे, किस्त भितरेर वायू तो निर्वात निस्पन्द। विज्ञान वले ए सब किछुई नय, केहई धीर स्त्रिया नय, आमादेर सूल असृति घारा एहीरप मने हीतेहे, किस्त आसले सब किछुई चक्षल, अभिमात्राय चक्षल।

पदार्थके आमरा साधारणत तिन भागे भागे भाग करिया थाकि,—कठिन, तरल ओ वायवीय; ए विभाग किस्त एकेबाबेरहे झांत्रिय, एकही जिनिष विभिन्न तण्ठायां कठिन, तरल ओ वायवीय आकार धारण करे। जलके कठिन, तरल ओ वायवीय आकारे आपनारा। नित्य देखितेहेन; जले सहजेहे ये ऊपास्त्रर घटे प्रति पदार्थे तण्ठायां घारा दाढ़ाइया वा कमाइया ताहार ऊपास्त्रर घटान याय.। सेटिग्रेड स्क्लेर 0° ते जल वरक हय एवं 100° डिग्रीते उहा वायवीय आकार धारण करे; एই सेटिग्रेडेर शृङ्खले नीचे 193° डिग्रीते याईले एই वायूं तरल आकार धारण करे। छंदिन पूर्वे एই घरे आर एक बळूताय आपनारा वायूके तरल आकारे देखियाहेन। एत दिन हिलियमके ए सद्दके एकटा वेयाडा ग्यास वलिया जाना छिल, किस्त एই से दिन शृङ्खले

২৬৯° ডিগ্রী নৌচে উহাকেও তরলায়িত করা হইয়াছে। আর একদিকে সোহা সোণাকে তরল করার কথা আপনারা জানেন, কিছু দিন হইল ৪৮০০° ডিগ্রীতে টঙ্কেনকে তরল করায় কঠিন পদার্থকে তরল করা ব্যাপারে আর কিছু বাকী রহিল না।

এখন পদার্থের এই বায়বীয় আকার সম্বন্ধে একটু আলোচনা করা যাউক। একটি শিশির মূখ বক্ষ এবং তাহার মধ্যে একটু বাতাস আছে; বিজ্ঞান বলিতেছে এই যে শাস্ত, ধীর, স্থির বাতাসটুকু দেখিতেছ উহা কোটি কোটি শুক্র কণিকার সমষ্টি মাত্র, এবং এই কণিকাগুলি ভীমবেগে লাফালাফি দৌড়াদৌড়ি করিতেছে। যে যুক্তি দ্বারা এবং যে সকল পরীক্ষার ফলে বিজ্ঞান এই কথা বলিতেছে তাহার সামাজ্য একটু আভাস দিতেছি।

বাতাস পদার্থঞ্চীভূক্ত—ইহার ওজন আছে; পৃথিবীর উপরকার বায়ুমণ্ডল বহুদূর অবধি বিস্তৃত, স্ফুরাং এই বায়ুমণ্ডল আমাদের উপর বেশ কিছু চাপ দিতেছে, আর বায়ুচাপমান যন্ত্র দ্বারা এই চাপ মাপা যায়। মনে করলে সম্মুখের এই টেবিলের উপর স্তরে স্তরে সাজান অনেকগুলি বই আছে, এই বইগুলি টেবিলের উপর বেশ কিছু চাপ দিতেছে। একটু লক্ষ্য করিলে দেখা যাইবে যে বায়ুমণ্ডলের চাপ আর টেবিলের উপরকার পুস্তকগুলির চাপ ইহাদের প্রকৃতি ঠিক এক নয়। বইগুলি চাপ দিতেছে শুধু তলায়, আশ—পাশে এখার ওখার কোন চাপ নাই; কিন্তু শিশির মধ্যের বায়ুটুকু চারিদিকে চাপ দিতেছে। শুধু তাই নয়, শিশির মূখ যে ছিপি দিয়া বক্ষ রহিয়াছে ঐ ছিপির তলায়, শিশির ভিতর, রহিয়াছে অন্ন একটু বায়ু আর উপরে বিষমান বহু মাইল বিস্তৃত বায়ু সমূজ; কিন্তু ছিপির ছ'দিকে ঠিক সম পরিমাণ চাপ পড়িতেছে; পরীক্ষায় দেখুন ছিপির পরিবর্তে শিশির মুখটা একটা পাতলা রবার দিয়া বক্ষ করা হইল এবং বায়ুনিষ্কাসন যন্ত্র দ্বারা ধীরে ধীরে উহার মধ্য হইতে বাতাস বাহির করিবার ব্যবস্থা আছে; যেই শিশি হইতে একটু বাতাস বাহির করিয়া লওয়া হইল অমনি মূখের রবারের চাদরটা খানিক নামিয়া গেল; আর খানিকটা বাতাস টানিয়া লইলে উহা আরও নামিয়া কাটিয়া যাইবে। ব্যাপারটা হইতেছে এইঃ—পরীক্ষার পূর্বে রবারের চাদরের একদিকে বহু মাইল বিস্তৃত বায়ুরাশি বে চাপ দিতেছিল ভিতরের অন্ন পরিমিত

বায়ু ঠিক ততটা চাপ দিয়া ঐ রবারের চাদরকে সমতল রাখিয়াছিল ; এখন বায়ুনিকাসন করিয়া যেই ভিতরের চাপ কমাইয়া দেওয়া হইল, অমনি উপরের চাপ বলবৎ হইয়া রবারের চাদরকে দাবাইয়া দিল। অঙ্গ ভাবে আর একটি পরীক্ষা দেখুন। এই একটা বড় কাচের পাত্রের ভিতর একটি রবারের বেলুন রাখিয়াছে ; বেলুনের মধ্যে বায়ু আছে, খুব অল্পই আছে, বেলুনটা প্রায় চুপসাইয়া আছে ; এই বারে এই বড় কাচের পাত্র হইতে ধীরে ধীরে বায়ু বাহির করিয়া ফেলা হইতেছে ; দেখুন ঐ চোপসান বেলুন ক্ষেমন ধীরে ধীরে বড় হইতেছে, বাহিরের অনেকটা বাতাস বাহির করিয়া বাহিরের চাপকে খুব কমাইয়া দেওয়া হইল, ভিতরের চাপকে প্রতিষ্ঠিত করিবার পূর্বশক্তি এখন আর ইহার নাই, দেখুন সেই চোপসান বেলুনটির কলেবর এখন কি বিরাট !

এই ধরণের বিভিন্ন পরীক্ষা হইতে বৈজ্ঞানিকগণ ঠিক করিলেন যে, এই যে পাত্র মধ্যে ধীর ছির বায়ু দেখিতেছ ইহা কতকগুলি বায়ুকণার সমষ্টি মাত্র, এবং এই কণাগুলি প্রচণ্ড বেগে ছুটাছুটি করিতেছে ; বায়ু যতই উত্তপ্ত হইবে ইহাদের বেগ ততই বর্ণিত হইবে। পরীক্ষায় এই বেগের মাত্রা নিরূপিত হইল ; আজ এখন এই ঘরের মধ্যে যে বায়ুকণাগুলি দৌড়াদৌড়ি করিতেছে তাহারা সেকেণ্ডে প্রায় ১৩০০ ফিট বেগে ছুটাছুটি করিতেছে।

সর্বাপেক্ষা ক্রতগামী যে ট্রেন তাহার প্রায় ১০ শুণ অধিক বেগ ! ঘরের মধ্যে বড় নাই, বৈদ্যতিক পাথা চলিতেছে না, আপাত প্রতীয়মান এই ধীর ছির বায়ু মধ্যে প্রকৃতির কি তাওব রূত্য না চলিতেছে ! তরল ও কঠিন পদার্থে দৌড়ানৱ সীমানা ছোট হইয়াছে, বেগ মনীভূত হইয়াছে, কিন্তু রূত্য চলিতেছে—বিরাম নাই।

বায়ু ও বায়বীয় পদার্থের স্ফুর্জতম কণিকাগুলির ইহাদের অণু পরমাণুর মত্ত্যের গতি হইতে তাহাদের আরতনের পরিমাণ নিরূপিত হইল। এবং বিভিন্ন উপায়ে অণুর যে আয়তন নির্ধারিত হইয়াছিল এই পরীক্ষা দ্বারা তাহার সম্পূর্ণ যাচাই হইল। হিসাবে দেখা গেল যে, এক ঘন সেকেণ্ডিটারের মধ্যে কোন গ্যাসের অণুর সংখ্যা 3×10^{19} । কতকগুলি শৃঙ্খল দিয়া কিন্তু এই সংখ্যা জ্ঞানয়জ্ঞ করা যায় না। উপর্যা দ্বারা বুঝিবার চেষ্টা করা যাইক। মনে করা যাক এক কোঁটা জল শীত হইয়া পৃথিবীর আকাশ ধারণ করিল, তাহা হইলে ইহার অন্তরক্ষ—এক

একটি অনু এক একটি বাতাবি লেবুর আকার ধারণ করিবে, ইহা অপেক্ষা বড় নয়। আর বিশ্বের সংখ্যাতীত পদার্থ মধ্যে অগণিত অনুপরমাণু অর্হনিশি স্ফুরিংস্ট পথে ও স্ফুরিংস্ট ছলে মৃত্যু করিতেছে।

বর্তমান শতাব্দীর বিজ্ঞান বিশ্ব-জগতকের আর একটি পট তুলিয়া ধরিল। এই যে একটি পরমাণু যাহা পদার্থ মধ্যে ধাকিয়া আপন তালে নাচিয়া বেঢ়াইতেছে এবং যাহাকে এতদিন অবিভাজ্য জ্ঞানে পদার্থের চরম সীমা বলিয়া জানিতাম, নব্যবিজ্ঞান বলিতেছে যে তাহা নহে—এই পরমাণুও একটি জটিল পদার্থ, উহা করকগুলি আরও ক্ষুভি কণিকার সমষ্টি এবং বিভিন্ন মৌলিক পদার্থের পরমাণুতে এই কণিকাগুলি বিভিন্ন সংখ্যায় এবং বিভিন্ন ছলে মৃত্যু করিতেছে।

ব্যাপারটা প্রথম জানা গেল এই ভাবে। এই একটা কাচের গোলক প্রায় বায়ুশূল্ক করিয়া ফেলা হইল। খুব উচ্চ বিভবের তড়িৎ ইহার মধ্যে পাঠান হইতেছে; গোলক স্ফুল আলোকে রঞ্জিত হইয়া গেল। আলোক গোলকের একদিক হইতে আর একদিকে যাইতেছে এবং ইহার পথে একটি অস্বচ্ছ পদার্থ রাখা হইয়াছে। আলোক ইহার মধ্য দিয়া যাইতে না পারায় ইহার একটা ছায়া পড়িয়াছে, পড়িবারই কথা; নিকটে একটি চুম্বক ধরিলাম, ছায়াটি নড়িয়া গেল; চুম্বক নাড়িতেছি ছায়াটিও নড়িতেছে অর্থাৎ আলোকটি চুম্বকের দ্বারা সরিয়া যাইতেছে। কিন্তু ব্যাপারটা কি? চুম্বক কি আলোককে নড়াইতে পারে? এই একটি মৌমবাতি আলাইলাম, পর্দার উপর একটি দণ্ডের ছায়া পড়িল; চুম্বক কাছে আনিয়া নাড়ানাড়ি করিতেছি, ছায়া তো এক চুলও নড়িতেছে না। আগের আলোকের উৎপত্তি নিশ্চয় সম্পূর্ণ বিভিন্ন উপায়ে; একটি তড়িৎ মণিত পদার্থ ও ঐ আগেকার আলোককে নড়াইতে পারে। অতএব উহা উন্নত হইতেছে এমন কিছু দ্বারা যাহা আকৃষ্ট হয় তড়িৎ দ্বারা ও চুম্বক দ্বারাও। বহুবিধ বহু পরীক্ষা হইল; পরীক্ষায় জানা গেল যে এই আলোক উন্নত হইতেছে করকগুলি কণিকার দ্বারা যাহারা ঐ গোলক মধ্যে একদিক হইতে অপরদিকে ছুটিয়া আসিতেছে; আরও জানা গেল যে ইহারা বিয়োগ তড়িৎ মণিত এবং ওজনে সর্বাপেক্ষা হাঙ্কা যে হাইজ্রোজেন পরমাণু তাহার প্রায় ২০০০ ভাগের এক ভাগ। অন্তত ক্ষমতাশালী অণুবীক্ষণ দ্বারা ও দৃষ্টির অগোচর যে পরমাণু সেই পরমাণুর প্রায় ছ' হাজার ভাগের একভাগ যে ইলেক্ট্রন সে ইলেক্ট্রন যে কলনাপ্রস্তুত নয় তাহা যে বাস্তব তাহার

প্রমাণ দেখুন। বাস্তু নিকাসিত কাঠের গোলক মধ্যে তড়িৎ সাহায্যে ইলেক্ট্রন উৎসৃত হইল ; উহারা প্রচণ্ডবেগে ছুটিয়া আসিয়া একটি ধাতু খণ্ডে ধাক্কা দিয়া যে রশ্মির স্থষ্টি করিল তাহা আপনাদের তৃতীয় নেত্র খুলিয়া দিল ; এই রশ্মির সাহায্যে কাঠের বাঞ্চের অভ্যন্তরহীন ছুরি কাঁচি দেখিতেছেন, হাতের মধ্যের হাড় দেখিতেছেন ; আর এক পরীক্ষায় দেখুন উভাপ ধারা ইলেক্ট্রন উৎসৃত হইতেছে এবং ইহাদের সাহায্যে বিনা তারে বার্জা পাঠান সম্ভব হইতেছে। মানবের জ্ঞানের আবরণ ধীরে ধীরে উপস্থিত হইতে লাগিল ; জ্ঞান গেল এই যে কণিকা যাহাদের নাম দেওয়া হইল ইলেক্ট্রন,—এই ইলেক্ট্রন প্রতি পদার্থের উপাদান। এখন একটি পরমাণু তো তড়িৎ বিশুল্ক ; তাহার অঙ্গীকৃত একটি ইলেক্ট্রন যদি বিয়োগ তড়িৎ সংযুক্ত হয় তাহা হইলে এই পরমাণুর ভিতর আর কোন উপাদান আছে যাহা সংযোগ তড়িৎ যুক্ত। ইহার সকান চলিল এবং শেষ অবধি সকান মিলিল। ত্রি উপাদানের নাম দেওয়া হইল প্রোটন। প্রোটন ও ইলেক্ট্রন লইয়া প্রতি পরমাণু গঠিত। একটি লোহার পরমাণু প্রোটন ইলেক্ট্রনের সমষ্টি একটি সোণার পরমাণু ও প্রোটন ইলেক্ট্রনের সমষ্টি। এই বার কথা উঠিল—তাহা যদি হয় তো লোহা লোহা ও সোণা সোণা কেন ? উভর দিবার পূর্বে এ প্রশ্ন করা চলে যে প্রেসিডেন্সি কলেজের এ বাড়ী ইট চুন সুরক্ষিত ও বাড়ী ও ইট চুন সুরক্ষিত, তবে এ বাড়ী এ বাড়ী ও ওবাড়ী ওবাড়ী কেন ? কারণ নিশ্চয় এই যে, এ বাড়ীর ইট চুন সুরক্ষিত পরিমাণ ও উহাদের সাজাইবার ধারা ও-বাড়ীর ইট চুন সুরক্ষিত পরিমাণ ও সাজাইবার ধারা হইতে বিভিন্ন। ঠিক সেই রকমই সোনার একটি পরমাণুর ইলেক্ট্রন প্রোটনের সংখ্যা ও সাজানর ধারা লোহার একটি পরমাণুর ইলেক্ট্রন প্রোটনের সংখ্যা ও সাজানর ধারা হইতে বিভিন্ন, তাই সোণা সোণা ও লোহা লোহা। কিন্তু তাই যদি হয় তো লোহাতে কতকগুলি ইলেক্ট্রন প্রোটন জুড়িয়া দিয়া এবং তাহাদের সাজানর ভঙ্গী বদলাইয়া দিয়া তাহাকে কি সোণা করা যায় না ? অর্থাৎ এক মৌলিক পদার্থকে কি আর এক মৌলিক পদার্থে পরিবর্তিত করা যায় না ? এ চেষ্টাও হইয়াছে এবং মানব সকলভাবে সাড় করিয়াছে ; কিন্তু ইহার অন্ত তাহাকে যে পরিমাণ উচ্চোগ আয়োজন করিতে হইতেছে এবং যে শক্তির ধৰচ করিতে হইতেছে তাহাতে এতদিনকার অসম্ভবকে সম্ভব করিবার আনন্দই সে সাড় করিয়াছে, কাজে কিছু লাগে নাই।

এই ইলেকট্রন প্রোটন কিভাবে আছে ? বিভিন্ন পরীক্ষায় প্রমাণিত হইয়াছে যে কেন্দ্রস্থিত প্রোটনকে বেষ্টন করিয়া—ইলেকট্রন ঘূরিতেছে—ভৌগণ বেগে ঘূরিতেছে। এখন একটি একটি পরামাণুর গঠন যদি এই হয় তাহা হইলে পদার্থ তো বিরাট শক্তির আধার ! এই শক্তির পরিমাণের একটা মোটামুটি হিসাব হইয়াছে। ত' একটা উদাহরণ দিতেছি ; আমার এই মৃঠার মধ্যে যে বায়ুটুকু আছে তাহার সমগ্র শক্তি এই বাড়ীকে ভূমিসাং করিতে পারে, এক চামচের চিনির অন্তর্নিহিত শক্তি এই সমস্ত সহরকে ধ্বংস করিতে পারে, এক বালতি জলের অন্তর্নিহিত শক্তি হিমালয়কে উপড়াইয়া ফেলিতে পারে। আজ আমরা জানি না, শুধু কি করিয়া এই শক্তি আহরণ করিয়া কাজে লাগাইতে পারা যায়। মানব যে দিন তাহা পারিবে সেদিন দেশের সহিত দেশের, জাতির সহিত জাতি, মানবের সহিত মানবের সঙ্গে আবার নৃতন করিয়া লিখিতে হইবে ; সে দিন শিক্ষা সপ্তাহে কলিকাতায় আসিতে আপনাদের পয়সা দিয়া টিকিট কিনিতে হইবে না, তামার অন্তর্নিহিত শক্তি আপনাদিগকে কলিকাতায় আনিয়া ফেলিবে। কিন্তু এমন যদি হয় যে মানব এই শক্তি শুধু আহরণ করিতে পারিবে, করায়ত করিতে পারিবে না তাহা হইলে তাহার এই পরীক্ষার বিরাট সফলতা দৃষ্টিগোচর করিবার কোন জীবন্ত সাক্ষী পৃথিবীতে থাকিবে না। কিন্তু কল্পনার কথা ছাড়িয়া দেওয়া যাক ।

আমরা দেখিতেছি পদার্থের অভ্যন্তরস্থ পরিমাণগুলি স্বনির্দিষ্ট তালে রূত্য করিতেছে ; আবার প্রতি পরমাণুর অভ্যন্তরস্থ স্ফুর্জতর কণিকাগুলি ও আর এক ছন্দে রূত্য করিতেছে ; স্থষ্টির প্রারম্ভ হইতে এই রূত্য আরম্ভ হইয়াছে এবং শেষ অবধি বোধ হয় এই ভঙ্গীতে তাহার রূত্য চলিতে থাকিবে। এই কি তাহার প্রেম্য নাচন ! এই রূত্যের ছন্দ, তাহার ঝক্কার, তাহার রাগিণীর কথা রবীন্দ্রনাথের ভাষায় উল্লেখ করিয়া সমাপ্ত করিলাম ।

যে রাগিণী চির জন্ম ধরিয়া
চিত্তকুহরে উঠে কুহরিয়া
অঞ্চ হাসিতে জীবন ভরিয়া
ছুটে সহস্র স্নোতে ।

কে আছে কোথায়, কে আসে, কে যায়,
নিমেষে প্রকাশে, নিমেষে মিলায়,

বালুকার পরে কালের বেলায়
ছায়া আলোকের খেলা ।

জগতের যত রাজা মহারাজ
কাল ছিল যারা কোথা তারা আজ,
সকালে ফুটিছে স্বৰ্থস্থ লাজ,
টুটিছে সক্ষ্যাবেলা ।

শুধু তার মাঝে ধ্বনিতেছে সূর
বিপুল বৃহৎ গভীর মধুর
চিরদিন তাহে আছে ভরপুর
মগন গগন তল ।

নারীশিক্ষা সমিতি

শ্রীযুক্তা পূর্ণিমা বসাক

নারীশিক্ষা সমিতি ও তাহার অস্তর্গত অর্হৃষ্টানগুলির সম্বন্ধে আজ হ'চারটি কথা আগনাদের নিকট বলিতে ইচ্ছা করি। আজ ১৬ বৎসর ধরিয়া কি ভাবে এই সমিতি বাংলার মেয়েদের মধ্যে শিক্ষা বিষ্ঠারের চেষ্টা করিতেছে ইহা হইতেই তাহা বুঝা যাইবে।

বিঢ়ালাগর বাণীভবন—সমিতির অস্তর্গত বিঢ়ালাগর বাণীভবন বিধবাদের একটি আশ্রম। এই আশ্রমে ধাকিয়া হিন্দু বিধবারা তাহাদের আদর্শ অনুযায়ী সংযত নিষ্ঠাসম্পন্ন জীবন যাপন করিয়া মধ্য-ইংরাজি বিঢ়ালয়ের শিক্ষা বিনা খরচে পাইবার স্থূল্য লাভ করিয়া থাকেন। সাধারণ শিক্ষার সঙ্গে সঙ্গে তাহারা জ্যাম, জেলি, সেলাই, তাঁত, রংয়ের কাজ প্রভৃতি শিল্পশিক্ষা, নার্সিং ও প্রাথমিক সাহায্য শিক্ষা করিবার স্থূল্য লাভ করিয়া থাকেন। আজ পর্যন্ত এখানে শিক্ষা সমাপ্ত করিয়া ১৪৫টি মেয়ে বাহির হইয়াছে।

মহিলা শিক্ষাভবন—সমিতির অস্তর্গত মহিলা শিক্ষাভবন একটি দৈনিক শিল্প-বিঢ়ালয়। এই শিল্প বিঢ়ালয়ে সংসারের কাজকর্ম সারিয়া দরিজ ও মধ্যবিত্ত ঘরের মেয়েরা বেলা ১২টা হইতে বিকাল ৪টা পর্যন্ত বিনা বেতনে শিল্প-শিক্ষার স্থূল্য লাভ করিয়া থাকেন। এই বিঢ়ালয়ে কুমারী, সধবা, বিধবা যে-কেহ আসিয়া শিক্ষালাভ করিতে পারেন। রেশম ও সূতার সূক্ষ্ম সেলাই, তাঁত, আসন, সতরঞ্জি, চামড়ার কাজ, কাটাইট, জ্যাম জেলি, চাটনি ইত্যাদির কাজ, রং ও পাড়ের ছাপ প্রভৃতি কাজ শিক্ষার ব্যবস্থা এখানে রহিয়াছে। নানাবিধি শিল্পকার্যের সঙ্গে সঙ্গে যাহাতে নিরক্ষর মহিলারা সাধারণ বাংলা শিক্ষা করিতে পারেন তাহারও ব্যবস্থা রহিয়াছে। এই শিক্ষালাভ করিয়া মধ্যবিত্ত ঘরের মেয়েরা তাহাদের নিজ নিজ সংসারের যাবতীয় প্রয়োজনীয় বস্ত্রাদি নিজেরাই প্রস্তুত করিয়া লইতে পারেন এবং কিছু কিছু অব্য বিক্রয়ার্থেও তৈরী করিতে

পারেন—এইভাবে তাহারা অভাবের সংসারে কিছু পরিমানও সাংসারিক কার্য্য করিয়াও আর্থিক সাহায্য করিতে সমর্থ হইয়া থাকেন। আজ পর্যন্ত এই ভাবে এই শিল্পবিষ্টালয় হইতে ৩২৩টী মেয়ে শিক্ষালাভ করিয়াছেন।

ট্রেনিং বিষ্টালয়—সমিতির অন্তর্গত বাণীভবন ট্রেনিং স্কুলে বিষ্টালয়ের বাণীভবনের উপর্যুক্ত ছাত্রীরা মধ্য-ইংরাজি শিক্ষা শেষ করিয়া জুনিয়ার ট্রেনিং পড়িবার স্থোগলাভ করিয়া থাকেন। বাহিরের মেয়েরাও এখানে আসিয়া দৈনিক ছাত্রীরপে পড়িবার স্থোগ পান। এই ট্রেনিং বিভাগের ছাত্রীদের জন্যই একটি প্রাক্টিসিং স্কুলও রহিয়াছে। গ্রামের বিষ্টালয় অন্তঃপুর স্তৰী শিক্ষা-বিষ্টার ও গ্রামে গ্রামে প্রাথমিক বিষ্টালয় স্থাপন সমিতির একটি মুখ্য উদ্দেশ্য। এই ক্ষেত্রে বাংলার বিভিন্ন জেলার পঞ্জীতে পঞ্জীতে ও কলিকাতার সমিতি আজ পর্যন্ত ৫৪টি বালিকা বিষ্টালয় স্থাপন করিতে সক্ষম হইয়াছে। ৫৪টী বিষ্টালয়ের কয়েকটি উচ্চিয়া গিয়াছে, কয়েকটি ডিস্ট্রিক্ট-বোর্ড প্রত্তি হইতে সাহায্যের সুবিধা করিতে পারিয়া স্থানীয় কমিটি স্থাপন করিয়া স্বাধীনভাবে পরিচালিত হইতেছে ও ২২টী বর্তমানে সমিতির অধীনে রহিয়াছে। এই সব বালিকা বিষ্টালয় হইতে ৫৫০০টী বালিকা প্রাথমিক শিক্ষা লাভ করিয়া বাহির হইয়া গিয়াছে। সমিতির অধীনস্থ ২২টী বিষ্টালয়ে বর্তমানে ১২০০ বালিকা শিক্ষালাভ করিতেছে।

সমিতির বিভিন্ন বিভাগের কর্মের সঙ্গে পরিচয় সাধনের জন্যই আমরা উপরের বিবরণটি দিলাম। এখন সমিতির আদর্শ, উদ্দেশ্য ও গ্রামের বালিকা বিষ্টালয়গুলি সম্বন্ধে ছ'চারটি কথা বলিয়াই আজিকার মত আমার বক্তব্য শেষ করিব।

সমিতির অঙ্গুষ্ঠান পত্রে বলা হইয়াছে—“নারীশিক্ষা সমিতির মুখ্য উদ্দেশ্য বঙ্গদেশে বিশেষভাবে পঞ্জীগ্রামে স্তৰী-শিক্ষার একাপ ব্যবস্থা করা যাহাতে বালিকারা স্বামাতা ও স্বৃগৃহিণী হইতে পারে; পুরস্ত্রী ও বিধবাগণ নিজ বাসগৃহকে শাস্তির আলয় করিতে পারে; এবং প্রয়োজন মত শিক্ষিয়ত্বী, ধাত্রী প্রত্তির কাজের দ্বারা এবং শিক্ষা চর্চার দ্বারা জীবনোপায় করিতে পারে।”

এই উদ্দেশ্যকে সার্থক করিয়া তুলিবার জন্যই সমিতিকে ধীরে ধীরে বাণীভবন, শিক্ষালাভবন, ট্রেনিং বিষ্টালয়, গ্রামের বিষ্টালয় প্রত্তি অঙ্গুষ্ঠানের সূচনা করিতে হইয়াছে। শিক্ষা কার্য্য ঘোগ্য করিয়া তুলিয়া মেয়েদিগকে যাহাতে শিক্ষাকার্য্যে

লাগাইতে পারা যায় সেই জন্ত গ্রামে গ্রামে বিভালয় স্থাপন ইহার একটি মুখ্য কর্তব্য।

বাংলার যথার্থ উন্নতি গ্রামের উন্নতির উপরই নির্ভর করে; আবার প্রতি গৃহের সন্তানদের উন্নতি ভাবী মাতাদেরই উপর নির্ভর করে। দেশের অতি সামাজিক অংশই সহর অধিকার করিয়া রহিয়াছে এবং এক পরিবারের সন্তানদের ভাবী উন্নতি অবনতির মূলে পিতার প্রভাবও অতি সামাজিক কার্য করিয়া থাকে। অথচ আশ্চর্যের বিষয় এই যে, এখনও দেশের দৃষ্টি এই গ্রাম ও বালিকা শিক্ষার দিকে তেমন ভাবে পড়ে নাই। সেই জন্তই একদিকে যেমন গ্রামগুলি নিরাশদের ক্ষেত্র হইয়া উঠিতেছে তেমনি দেশের মেয়েরাও অজ্ঞানের বেড়াজালে আঢ়েপৃষ্ঠে আবক্ষ হইয়া পড়িতেছে। এই নিরানন্দ ও অস্কারময় গ্রামের জীবনে যখন প্রতি ঘরে ঘরে এক একটি অল্পবয়স্ক বিধবা আসিয়া উপস্থিত হয়, তখন তাহার দুঃখ আরও গভীর হইতে গভীরতর হয়। আর্থিক ও পারিপার্শ্বিক নাশ পরিবর্তনে আজ গৃহে গৃহে এই বিধবারা উপেক্ষিতা ও লাহিতা। বাংলার এই বিপুল বিধবা শক্তি দেশের ও সমাজের কোন কাজেই আজ আর লাগিতেছে না। অথচ বাংলার পল্লীশিক্ষা প্রাথমিক ভাবে গড়িয়া তুলিতে হইলে এই বিধবাদের মত এমন যোগ্য, অল্প তুষ্টি, সংযত, নিষ্ঠাসম্পন্ন ও ত্যাগী কর্মসূলী ত আর কোথাও পাওয়া যায় না। দেশের গঠন কার্যে এই বিপুল শক্তির ব্যবহার হইলে দেশ যেমন শ্রীমণ্ডিত হইয়া উঠিবে, তেমনি প্রতি বিধবার মুখেও আবার সৌম্য শান্ত আনন্দের রেখা ফুটিয়া উঠিবে।

নারীশিক্ষা সমিতি তাহার সমগ্র দৃষ্টি দেশের এই বিপুল শক্তিকে কাজে লাগাইবার জন্য কেজীভূত করিয়াছে। সাধারণ শিক্ষাকে সম্পূর্ণ আকার দেওয়ার জন্যই সমিতি বিভিন্ন অঙ্গস্থানের ব্যবস্থা করিয়াছে। বিধবাদিগকে সাধারণ শিক্ষা, শিল্পশিক্ষা, নার্সিং, প্রাথমিক স্বাস্থ্য প্রতিবিধান ও আশ্রমোচিত সংযত জীবন যাপন করিয়া বাংলার পল্লীতে পল্লীতে গিয়া বালিকা প্রাথমিক শিক্ষা বিস্তারের কেজু গড়িয়া তুলিবার জন্য উৎসাহিত আশাহিত করিয়া তুলিতেছে। বিধবাদের ভাবী কর্মক্ষেত্র গড়িয়া তুলিবার সহায়তা করে সমিতির একজন মহিলা স্মৃত্পারিটেশন্ট ও তাহার অর্গানাইজার গ্রামে গ্রামে গিয়া শিক্ষার প্রয়োজনীয়তা সম্বন্ধে অলোচনা করিয়া থাকেন।

সমিতি কার্য ক্ষেত্রে নামিয়া শিক্ষাবিস্তারের সাধারণ অর্থিক বাধা, ও শিক্ষার প্রয়োজনীয়তা সহকে দেশের চৈতন্ত্যের অভাব ছাড়া আর একটি বিশেষ এবং বড় বাধা উপযুক্ত শিক্ষক ও শিক্ষিয়ত্বীর অভাব একান্তভাবেই উপলক্ষ করিতেছে। গ্রামে বালিকাশিক্ষা বিস্তারের জন্য একদিকে ঘেমন উপযুক্ত শিক্ষিয়ত্বীর প্রয়োজন তেমনি সাধারণ শিক্ষার সঙ্গে সঙ্গে শিল্প শিক্ষারও প্রয়োজন। সংসারের অভাব পুরণের সাহায্য করিতে পারে এমন শিক্ষা না থাকিলে সাধারণ শিক্ষায় কেবল দেশবাসীর মাড়া পাওয়া সম্ভব নয়, বিশেষভাবে মেয়েদের শিক্ষায়। সেই জন্য গ্রামে শিক্ষাবিস্তার সাধারণের জন্য গ্রামবাসীকে উৎসাহী ও বিশ্বাসী করিয়া তুলিতে হইলে চরিত্রসম্পন্ন, স্বাবলম্বি, সংবৃত ও অনাড়ম্বর জীবনযাত্রা সম্পন্ন তেজস্বিনী শিক্ষিয়ত্বী একান্ত প্রয়োজন; যাহারা একাধারে নিজেদের সংবৃত চরিত্রের মাধুর্যেই গ্রামবাসীকে আকর্ষণ করিতে পারিবে ও সাধারণ শিক্ষার সঙ্গে কিছু কিছু অর্থকরী শিক্ষা দান করিতে পারিবে। এই জন্যই এই মহৎ উদ্দেশ্য সাধনের জন্য সমিতি তাহার শিক্ষিয়ত্বী দিগকে সংবৃত, অনাড়ম্বর আশ্রমজীবন ধাপন করিয়া সাধারণ ও শিল্প শিক্ষা দিয়া ভাবী কর্মের যোগ্য স্বাবলম্বী জীবনের দৃঢ়তা দান করিবার চেষ্টা পাইতেছে। এই চেষ্টা ও উদ্দেশ্যের মূলে সমগ্র বাংলা পঞ্জীয় কল্যাণ ধ্যানটি রহিয়াছে। বাংলার চার পাঁচ লক্ষ বিধবাদের মধ্যে জীবনের সার্থকতার ন্তৰ এই পথটি খুলিয়া দিতে পারিসেই বাংলার এক একটি পঞ্জীতে ন্তৰন্তর শিক্ষাদীক্ষার কেন্দ্র গড়িয়া উঠা অনায়াস সাধ্য হইয়া উঠিবে। বাংলার পঞ্জীতে নবজীবনের মাড়ায় বাংলা শক্তিশালী হইয়া উঠিবে। এদিকে দেশের ও দশের সহায়ত্ব ও দৃষ্টি পড়িলেই সমিতিও নিজেকে সার্থক মনে করিবে।

সরোজনলিনী নারী-মঙ্গল সমিতি

কুমারী এস, চ্যাটার্জি

যদি একটা স্বনির্দিষ্ট কালের মধ্যে সমস্ত নারী সমাজের উন্নতি বিধান করিতে হয়, তাহা হইলে অপরিগত বয়স্ক বালিকাদের সার্বজনীন শিক্ষার যেৱাপ প্রয়োজন, পরিগত বয়স্ক স্ত্রীলোকদের সাধারণ বিষ্ণাশিক্ষারও সেইরূপ প্রয়োজন।

পরিগত বয়স্ক স্ত্রীলোকদের মধ্যে শিক্ষার পথ প্রশংস্ক করিবার উদ্দেশ্যে সেইয়া ১৯২৫ খঃ ২৩শে ফেব্রুয়ারী সরোজনলিনী নারীমঙ্গল সমিতি স্থাপিত হয়।

দেশের কোন উন্নতিমূলক কার্য্যই একজনের চেষ্টায় সংঘটিত হয় না। তাহার জন্য একজোট হওয়া আবশ্যক। আমাদের যে প্রতিষ্ঠানটি গড়িয়া উঠিয়াছে সেই প্রতিষ্ঠানের প্রধান উদ্দেশ্য দেশের, সমাজের, পরিবারের এবং ব্যক্তিগত কল্যাণের জন্য মেয়েদের সংঘ গঠনের সুযোগ করিয়া দেওয়া, যাহাতে তাহারা একজোট হইয়া নিজেদের সর্ববিধ উন্নতির চিন্তা ও চেষ্টা করিতে পারেন।

এই মহিলা সংঘ বা সমিতিগুলি সম্পূর্ণ মেয়েদের প্রতিষ্ঠান। সমিতিগুলির সভানেত্রী, সম্পাদিকা ও পরিচালক সভার সভ্যাগণ সকলেই মহিলা।

সমস্ত মহিলা সমিতিগুলির কার্য্য একটা নির্দিষ্ট আদর্শ এবং প্রণালী অনুসারে গঠন ও পরিচালনা করিবার জন্য কলিকাতায় একটি কেন্দ্র সমিতি স্থাপন করা হইয়াছে। মহিলা সমিতিগুলিতে যাহাতে নানা প্রকার গৃহশিল্পের শিক্ষাদান হয়, সেজন্য কেন্দ্র সমিতি বিভিন্ন সমিতিতে শিক্ষায়ী এবং নানা বিষয়ে বক্তৃতা করিবার জন্য প্রচারক পাঠাইয়া থাকেন। সমিতিতে প্রস্তুত জিনিসপত্র বিক্রয়ের সূবিধার জন্য কেন্দ্র সমিতির প্রদর্শনীতে শিল্পব্যাপি পাঠাইবার স্বত্বদ্বোবস্ত আছে এবং উপযুক্ত কার্য্যের জন্য মহিলা সমিতিগুলি কেন্দ্রসমিতি হইতে পুরস্কার পাইয়া থাকেন। মহিলা সমিতির ভিতর দিয়া স্থানে স্থানে শিশু মঙ্গল সমিতি ও ধাত্রী শিক্ষাকেন্দ্র যাহাতে স্থাপিত হয় সেজন্য কেন্দ্রসমিতি মহিলা সমিতিগুলিকে অর্থ সাহায্য করিয়া থাকেন। কেন্দ্রসমিতির মুখ্যপত্র “বঙ্গলক্ষ্মী” ত্রৈযুক্তা হেমলতা দেবীর সম্পাদকতায় প্রকাশিত হইতেছে। পত্রিকাখানি একদিকে নারী সমাজের

মধ্যে শিক্ষা প্রচারে সাহায্য করিতেছে, অপরদিকে সমস্ত মহিলা সমিতিগুলির মধ্যে যাহাতে একটা আদর্শের একট প্রতিষ্ঠিত হয় তাহার চেষ্টা করিতেছে। এই মহিলা সমিতিগুলি পঞ্জীয়নিনী নারীগণের জীবনে একটা নৃতন শক্তি, নৃতন কর্ম-প্রেরণা, নৃতন আনন্দ আনিয়া দিয়াছে। জীবনকে জ্ঞানে, কর্মে প্রকাশ করিবার জন্য তাহাদের মধ্যে একটা আগ্রহ জাগিয়া উঠিয়াছে। বর্তমানে এইজন্ম মহিলা সমিতির সংখ্যা ৪০০ শত।

সরোজনলিনী নারীমঙ্গল সমিতি কলিকাতায় একটি শিল্প শিক্ষালয় পরিচালনা করেন। এই শিল্পশিক্ষালয়ের প্রধান উদ্দেশ্য দেশের সমস্ত প্রাণবয়স্কা মহিলাদের সম্পূর্ণ শিল্পশিক্ষার ব্যবস্থা করা। এখানে সেলাই, ইঁটকাটি, ড্রয়িং, এম্ব্ৰয়ডারী, পিতলের উপর জয়পুরী নৱার কাজ, চামড়ার কাজ, বেতের কাজ ইত্যাদি শিক্ষা দেওয়া হইতেছে। আসন, কার্পেট, সতরঙ্গি বোনা হইতেছে। তাতে গামছা, ঝাড়ন, তোয়ালে, ছিট্‌টুইল, শাড়ী, ধূতি প্রভৃতি হইতেছে এবং কলে মোজা, মাফ্লার সোয়েটোর বোনা হইতেছে। হই বৎসরকাল শিক্ষালাভ করিয়া পৰীক্ষায় উত্তীর্ণ হইলে শিক্ষালয় হইতে উত্তীর্ণ ছাত্রীদের সার্টিফিকেট দেওয়া হয়।

এই প্রতিষ্ঠানের আর একটি উদ্দেশ্য মফঃস্বলের মহিলা সমিতিগুলির জন্য শিক্ষায়িত্বিগণকে উপযুক্ত ট্রেনিং দেওয়া। স্কুলে বাংলা, ইংরাজি, অঙ্ক ভূগোল, ইতিহাস প্রভৃতি সাধারণ শিক্ষার পর যাহাতে ছাত্রীগণ শিক্ষায়িত্বী হইবার সুযোগ পায় সে জন্য শিল্পশিক্ষালয়ের সহিত একটি জুনিয়ার ট্রেনিং বিভাগ খোলা হইয়াছে।

বিহুলয় স্থাপনের পর হইতে প্রায় ১৩০০ মহিলা এখানে শিক্ষালাভ করিয়াছেন। দ্বিতীয়া শেষ উপাধি পৰীক্ষায় উত্তীর্ণ হইয়াছেন তাহাদের মধ্যে শতকরা ৬৬ জন উপযুক্ত কর্মে নিযুক্ত হইয়া মাসিক ৩০ টাকা হইতে ৮০ টাকা পর্যন্ত উপার্জন করিতেছেন। স্কুলের অনেক ভূতপূর্ব ছাত্রী কলিকাতায় ও মফঃস্বলে সরোজনলিনী নারী শিল্প শিক্ষালয়ের আদর্শে শিল্পবিহুলয় পরিচালনা করিতেছেন। ইহাদের অনেকেই বিধবা ও ছহা মহিলা এবং এইজন্ম শিল্পশিক্ষা না পাইলে হয়তঃ আমৃত্যুবন্ধনের গলগ্রহণকাপ হইতেন।

গত ১৯৩০ সালের মার্চ মাসে সরোজনলিনী নারীমঙ্গল সমিতি পুরী বিধবাঙ্গমের পরিচালনাভার গ্রহণ করেন। লেতো বসন্তকুমারী দেবী পুরীতে এই

আঞ্চলিক স্থাপন করিয়াছিলেন। এই তিনি চার বৎসরের মধ্যে বিধবাঞ্চমটি একটি শিল্প ও বিদ্যালিঙ্কার কেন্দ্রস্থলে পরিগণিত হইয়াছে।

অতি সংক্ষেপে আমাদের কার্য্যাবলীর কিছু পরিচয় দিলাম। যতই আমাদের কার্য্যের অসার বৃক্ষ হইতেছে, ততই আমরা বুঝিতেছি আমাদের সম্মুখে বিশালতর কার্য্যক্ষেত্র পড়িয়া রহিয়াছে। অনেক কার্য্য করা হইয়াছে, কিন্তু এখনো অনেক কার্য্য করিবার আছে। সরোজনলিনী নারীমঙ্গল সমিতি সর্বসাধারণের জিনিস, তাই ইহা সর্বসাধারণের সাহায্য ও সহযোগিতা প্রার্থনা করে।

THE DEVELOPMENT OF A SYSTEM OF PRIMARY EDUCATION BASED ON THE INDIGENOUS SYSTEM OF PRIMARY EDUCATION.

By REV. MOTHER ANTONIA BURKE.,

One of the great drawbacks to the existing system of education is that it is to a very large extent a foreign imposition. It testifies to the intelligence of the people of India that they have been able to use it and benefit by it to such an extent. The imposition of this foreign system was probably well-intentioned, if blundering, as well-intentioned actions often are. The authorities responsible for its introduction had no definite ideas on education, had framed no educational policy even for England. They were doing for the people of India the same or even more than they were doing for their own people in England, for whose education they showed not the slightest concern, leaving the matter entirely to philanthropy, or private enterprise. They were fundamentally ignorant of Indian institutions and culture. That this age-old system was worthy of study, or that it contained valuable educational factors never dawned on the minds of those to whom the work of devising the educational scheme was entrusted. Records show that certain persons visiting India in the 17th Century were impressed by the extension and methods of the primary schools which had come down from older times; but it may also be inferred that these persons regarded the schools as belonging to a past without promise for the future. The old Sanskrit Learning had set its face to the past. It was open only to the chosen few. It would have been impossible through its medium to meet the demands of the new situation developing. The vernaculars were undeveloped and despised, merely the "common drudge 'twixt man and man". Unfortunately their possibilities and the system of the pathsalas in which vernacular instruction as carried on, were never investigated. It is deeply to be regretted that some such research was not made and that the projected system of education was not grafted on to the older system which had its roots

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in the land, correcting, improving, bringing it into touch with the world of the day by the introduction of Western thought and methods in suitable measure, and by the production of suitable text-books in the vernaculars.

Indigenous primary education in Ancient India possessed certain features strikingly advantageous, which might well be revived in modern schools. The vernacular was the medium of instruction. The use of the vernacular as the medium of instruction has great advantages; the subject matter is better understood; clearer ideas are gained; greater interest evoked and the connection between education and the environment made closer. The vernacular is benefitted in that a more accurate and refined use of the language is cultivated and the development of a literature is stimulated.

In these schools of ancient times self-activity was encouraged by the methods used in teaching certain subjects notably reading and writing, which is just where the modern primary schools fail so lamentably. Instruction was to a large extent individual; general explanation or class-teaching the exception, not the rule. Each pupil progressed at his own rate, a very important provision when the attendance, especially in rural districts, is, and must be, irregular.

The monitorial system practised in these ancient primary schools afforded certain advantages. It eased the burden of the teacher relieving him of much of the mechanical work, leaving him free to give individual attention of scholars who needed it. It gave training in responsibility to the older boys, taught them to control and manage tactfully their fellows; trained the younger boys to obedience and submission to lawful authority. The teaching of younger boys, limited though it was in extent, was beneficial intellectually to the monitors, producing clear ideas of the fundamentals and affording opportunities of testing what they already knew. This feature of educational practice when introduced into England by Bell early in the nineteenth century, was thought to be a wonder-working innovation, and it dominated the elementary schools in England until the beginning of the present century. In some form, with suitable modification to suit present conditions, it might be revived in the elementary schools, especially the village school where rarely more than one teacher can be employed. In addition, it would serve to prepare pupils for the teaching profession.

With regard to the teaching of special subjects, the methods of teaching, reading and writing used in the primary schools of Ancient India were strikingly similar to the most modern methods adopted in Europe. It seems to be a case of re-discovery. The initial stages of instruction in these subjects seem to have been based on the instinctive tendencies of the child, and to connect the exercise of the activity with pleasurable effects. Children love to play with sand, a pleasing form of manipulation—so the early stages of writing viz. tracing the letter-form in sand with the hand or a finger first, and later with a stick, were calculated to utilise natural activity and to connect learning with pleasurable effects, adapting the procedure to the development of the child, the coarser movement with the hand being first introduced, later those, more complex and involving finer adjustments, necessary for the holding and the manipulation of an instrument. This can be described only as an extraordinary foreshadowing of modern psychology and pedagogy. The method is very similar to that devised by the famous educationist, Dr. Montessori, some twenty years ago.

The next step in the teaching of writing was the filling-in with charcoal "ink" of a groove in the form of a letter traced on a palm-leaf, the exercise being repeated until the form could be followed with ease and accuracy. Then the child was required to produce the form without the aid of the groove. The planning of this method shows a wonderful feeling towards right pedagogics, in the gradual increase in the demand on the child's powers as they develop through exercise. Another point worthy of note is the use of the products of nature, of the immediate environment, for apparatus. The great cry from the majority of primary schools especially in the villages, is poverty;—and they are poor, extremely poor. But they are also improvident and lacking in resourcefulness. Good apparatus is not always costly apparatus; more often the contrary, for then the children are allowed to handle it more freely, and so learn more, from its use. Besides the use of natural objects in the process of learning brings the learning into more active contact with life and teaches the valuable lesson of utilising the resources ready to hand. In modern schools work in clay might be profitably used to supplement the tracing at this stage, the letters being formed out of thin rolls of clay.

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In the old schools as the child traced the letter he uttered the sound of the symbol, thus from writing he was led to reading. Proceeding from the simple to the complex, the child first learnt the easy letter forms and when he had mastered these, the combinations in which the forms were modified. Details are lacking as to the exact method of teaching reading in the old primary schools. It was probably some foreshadowing of a phonic method. As the Indian vernaculars are phonic such a system should have proved satisfactory, and the re-introduction of such a system supplemented by the "Look and Say" or the Sentence methods, would be desirable and fairly easy to achieve. The use of such methods would certainly speed up progress in the early stages where stagnation and waste are at their height. One of the gravest charges against primary, and especially village education, is that the children spend so long in the infant class that there is no chance of their reaching the end of the primary course before their school-going years are done, and they become bread-winners. The relapse into illiteracy is inevitable. Such relapse is worse than "un-redeemed" illiteracy, for it affords a standing proof of the futility of education. "Such a one", they say? "has been to school, yet in what way is he better fitted for life than those who have not been to school? Why waste time and money?" The ancient primary schools were defective in that the matter read was often worthless from a literary and even moral point of view. Reading matter should always tend to uplift while rousing interest. Even for the youngest children it should be always "worth while" and connected with real interests, the interests of the child. In modern schools plenty of practice in oral composition should be given.

From the above description of the methods in use in indigenous primary schools it is clear that there need be little change in the methods of teaching reading and writing, which according to approved modern practice were taught together, writing preceding reading.

The teaching of arithmetic in the old schools seems to have been very defective from a modern view. Little or no use was made of the reasoning powers. The work was confined to mere mechanical memorising of number relations discovered by somebody unknown, eternal table learning. In arithmetical teaching there must be practice and drill to secure ready recall, but this drill must follow the presentation of number of facts through experience in

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handling objects and in the exercise of self-activity in a host of ways. The Heuristic Method should be followed, to a certain extent at least, in the presentation of arithmetical rules and the solution of problems, work in arithmetic should always be connected with the life of the environment.

The curriculum of the pathsala should be widened considerably and this not only with regard to the subject matter, but also with regard to the spirit. No direct provision for physical training appears in the ancient system. Physical training and games and dancing are most important features of the curriculum. Indigenous games should be cultivated.

The ancient system was defective again on the aesthetic side. There is no mention of music in the pathsala course, and such drawing as was taught was purely utilitarian, more copying of conventional curves and designs. Art should be connected with nature, with handwork, including work in card-board, light wood-work, clay modelling, weaving, and should include some elementary notions of colour and design. Music, at least singing should form a feature of the course, both for boys and girls.

In most rural district elementary science may be profitably connected with agriculture, so that for boys at least, certain principles of physics, chemistry and biology, should be discovered in, and applied to the agriculture of the district.

Hygiene should be made the object of special attention and should be treated in a simple practical way with reference to the environment. Simple geography, first, of life and work in the homeland starting from the home-district, later widening to include life and work in other lands connected with the homeland, to extend interests and broaden minds. Observations of the geographical features and phenomena of the district are important and records of such observations should be kept.

Provision on similar lines should be made for the education of girls. Homecraft, including the care of children, first-aid, simple home-nursing, cooking, needlework, on scientific lines should replace elementary science applied to agriculture taken by boys. This scheme of education should continue until the twelfth year is entered, and should be made compulsory, and therefore free.

Provision should be made in central places for a continuation course, lasting about two years, attendance at which should be optional, though every

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encouragement should be given to the more intelligent pupils to avail themselves of the advantages it affords. As this stage of education represents more than the bare essentials, a small fee might be charged. The course should permit of a certain amount of bread-winning work being undertaken by the children, either in helping with the field-work or in the home, or it should be conducted as a part-time course, as an evening shift, or in connection with paid industrial work.

In this course the study of the vernacular should be pursued on a higher and more literary level; lessons in applied science might be extended; the study of geography should receive special attention, starting from the home area, giving scope for practical work and extending the pupils' knowledge of the world.

The study of the History of India should be beneficial, and this course should include the elements of civics, dealt with very simply and in connection with local needs and problems, the life of the district and its work. The study of English by the direct method should be introduced, that is conversational English. The substitution of Basic England for what is usually understood by English should be considered.

Such a scheme as the above may claim to provide the "educational ladder", the desideratum of educationists. The Primary Stage affords a reasonably complete education for those who have neither the mental capacity nor the financial means to proceed further, while the same primary stage leads without a break to the Higher Stage. This Higher Stage should not be free except in the case of pupils of outstanding ability selected from the Primary Schools. The Higher Stage in its turn will be found to afford a very good preparation for the new course prescribed for the Matriculation Examination. So that it is possible for a talented boy or girl to start in a village primary school, and reach the University.

A system of scholarships and stipends should make this upward passage possible for children of exceptional ability. For the average, fees, a small fee for the Higher Primary course, higher fee for the High School or Secondary and University Courses, should be charged.

It is possible then, to develop an educational system grafted on to the pathsala, in its early stages embodying the simplicity and directness of the

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ancient system, but developing and extending to meet the needs of the more complex society of to-day.

One feature of the pathsala which, unfortunately, tends to be perpetuated, though not from a motive of reverence for the past, is the low regard which is paid for the primary school teacher. As in the old times, he is miserably paid, as poorly as a servant, and as such he is esteemed. He forfeits the prestige he might enjoy if he gave without receiving aught, while he does not earn the esteem which attaches to well-paid service. The position of the woman teacher is even worse. Social and economic conditions make it extremely difficult to secure the right type of women teachers except in well-established centres. In the villages usually the first qualification to be considered is that her home is in the village. Frequently she is one who has barely acquired literacy in her school-days. Perhaps these are long past, and in the interval time has done its work with forgetting, so that she is actually able to teach less than she learnt. Under such a guide, "the blind leading the blind", regression is inevitable. Until this state of affairs is remedied the village school-teacher will never exercise the influence he or she should. At present too many in that position are of a type incapable of exerting good influence, for the right type is not attracted to the work. To be attracted he would have to be either a fool or a hero. Village life is usually difficult for those who have had experience of town life. Conditions must be improved so that these elementary schools may attract the right type of teacher, who will be looked up to in the village and exert an educational influence on adults as well as children. He must be one with whom they may discuss their problems and to whom they may appeal in their difficulties and disputes. Conditions must be improved ; housing conditions, rates of pay, etc. In a later issue of that excellent magazine Educational India, it was pointed out that were the conditions of village primary schools improved an appreciable percentage of the educated unemployed might be found willing to serve as masters, but the pay should be more than doubled and the housing conditions such that it would be possible for such a man to make his home in the village. Should his wife be willing to undertake education of the women and girls her services should be adequately remunerated.

There must be a serious endeavour to raise teaching to the level of a profession, and this means training. The problem of training is not easily solved. There is little use in sending a selected few from the villages to some training school or college in a city or large town. As a rule these students get completely "lost" in such institutions and take long to adjust themselves, if ever they do adjust themselves. Developing an inferiority complex they become more shy and retiring and find it extremely difficult to give expression to their ideas and needs. In such cases an accretion of information is the result, not development, and the students become more and more bewildered. On leaving these well-equipped town colleges they are unable to adapt what they have learnt to the vastly different and often primitive conditions in which they are expected to work. Frequently a town-training breeds unwillingness to return to the village. Village education requires special training, designed to give a thorough understanding of rural life. This consideration must be borne in mind in connection with the suggestion that if the conditions were improved village schools might absorb some of the educated unemployed. They, without a special aptitude for the work developed by special training, would be as out of place in the village as the simple villager would be in the town college. It was suggested to me by one who has given much thought to the matter that better results would be obtained by the institution of small training centres serving groups of villages, to which the village teachers might be sent for short courses of some three months duration in the subject matter of the primary curriculum adapted to rural conditions, child-study, hygiene, methods of teaching physical training, and for those who desire it, music and art with practical experience in teaching and organisation. To such a centre the teachers might come in turn, every rural primary teacher being obliged to take a refresher course every three years;—or the centres themselves might be organised as itinerant training schools spending three months in one district, three months in another.

Schemes mean money and money is hard to find in these times of depression. One hundred years ago the position of England with regard to mass-education was, if anything, worse than the position in India to-day. Now the literates and those in-power are convinced of the need and will to seek for, and apply the remedy. In England one hundred years ago mass education was

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strenuously opposed. The State took no interest in the matter, had not awakened to its responsibilities. Now vast sums are expended on education, which is regarded as the most important item of national expenditure. Much of this money is raised by an education cess which amounts to, roughly, about one eightieth of the rates. This is paid by all except the very poors though perhaps some 30% of the people do not avail themselves of the free education to which the payment of the tax entitles them, but they prefer to send their children to fee-paying institutions. The tax, once stoutly resisted, is now cheerfully paid by all, for all realise that education is essential to national welfare. In India the bulk of the people for whom the education is designed are incapable of paying fees beyond a very few annas, or of being taxed; and they have still to be convinced of the value of education. The burden must fall on others,—on those "who have received" of this world's goods, of the benefits of education. It is most noticeable that in our big towns and cities, even in these "hard times" that a good deal in the way of amusement goes on. A certain amount of relaxation is necessary and therefore legitimate but would it not be possible to tax the unessential and often injurious pleasure seeking and therefrom obtain the means of satisfying an absolute need? Again many things, once regarded as luxuries some years back, have now become necessities, and the list is growing. Taxation of such items might be another source of income. The world is very selfish, increasingly so. If people have become incapable of sacrifice in the cause of humanity, has not the State the right to intervene and raise the money needed by increased taxes on luxuries and amusements?



Physical Demonstrations by the Girl Students at the Bengal Education Week, 1936.

Photos by the Courtesy of the Amritabazar Patrika.

THE PHYSICAL EDUCATION OF VILLAGE GIRLS:

BY MR. J. P. BOSE, M.A.

Mr. President, Ladies and Gentlemen,

Allow me at the outset to offer my gratitude to the Ladies' Committee of the Bengal Education Week for the honour it has done me in asking me to speak at this symposium on the work done by the Sarisha Ramkrishna Mission Sarada Mandir (girls' Extended Middle English School) with special reference to the physical education of girls. I shall therefore refrain from treating the subject from a merely academic point of view and base my discussions on results of actual work carried on in our school. In this paper I should like first of all to touch very briefly on some of the main features of the school before I enter into greater details about the provision of physical education in it and the results thereof.

Education of girls in rural areas is commonly vitiated, either by too narrow conservatism, or by an undue emphasis on some one aspect of education to the neglect of others. The Sarada Mandir seeks to obviate this defect and aims at a harmonious all-sided development of the girls placed under its care. So the physical, moral, intellectual and social sides of education receive proper attention of the authorities.

A special feature of the school is the various forms of extra-curricular activities that are conducted through the "Chhatri Sangha"—an organisation consisting of 35 most promising girls of our school. The members of the Sangha enjoy a very large amount of self-government in the management of the normal works of the school and are in charge of nursing, first-aid, cooking, gardening, library, literary society, co-operative stores, games and physical culture, and cleanliness of class rooms and the school compound. They are properly trained in these and other things, and undertake the training of other girls of the school. The members of the Chhatri Sangha can and do join the annual Education Camp organised by the Mission for boys and girls separately.

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The girls are always kept in touch with the current thoughts and movements of the world through discussions as well as through newspapers and periodicals which they read regularly as a part of their daily duties. Development of the intellectual side is also assisted by a well-furnished library kept entirely under the management of the girls.

Moral training is sought, not so much through formal instruction, as through discussion on lives of great men. We try also to induce a love and admiration for the best ideals and traditions of our country. Besides, there is the indirect influence of habits of cleanliness, of healthy games and sports, of active useful occupation throughout the day. The Chhatri Sangha exercises its judicial powers with regard to the offences of its members.

The girls are trained in a way that develops their social side also to the fullest extent. They nurse their fellow students when they fall ill and participate in relief work, specially in fire relief, which is greatly needed in rural areas. During the education camp girls undertake cleaning the filthiest quarters of the neighbouring villages. A spirit of service and sacrifice is thus sought to be fostered in them, that they may come to feel themselves as useful members of society.

The most distinguishing feature of the school, however, is the ample provision for efficient up-to-date physical education of girls—a thing unfortunately much neglected in village girls' schools. Here, as also in other cases, our main principle is to have everything managed, as far as possible, by the girls themselves. We have a very competent physical instructor who trains the girls in athletics, games, and other forms of physical culture, e.g. ju-jitsu, pole drill, dumbbell drill, lazim drill, squad drill, swedish drill and Indian club drill. When the preliminary training is over, girls practise these things under their own leaders of the Chhatri Sangha. The girls play volley ball, happy ball, badminton, deck tennis, ping pong and also various kinds of country games. Most of them have learnt cycling, which has been specially serviceable to those girls who attend school from distant villages. Our girls took part last year in the inter-school sports organised by the Inspectress of Schools and they intend to do so this year too. In the annual sports of the City Athletic Sports Club and the Mohan Bagan Athletic Sports Club one of our girls did creditably in sprinting. All the girls of our school are provided every

day with free tiffin. They are regularly weighed and measured. There is a well furnished open air gymnasium attached to the school. The school possesses a good stock of first-aid requisites and of appliances required for games, sports and other forms of physical activity.

Now, I think, it will be better to dwell briefly on certain things which are results of our experience in long practical work in the field of physical education of village girls and, as such, may be of some use to our co-workers in the same field. Some of the suggestions given here may sound as commonplace truisms; but they have years of experiments and observation at their back.

First, in our view, the aim of physical education should be not so much to produce a number of girl athletes, specialists in certain forms of physical culture, as to enable them to keep fit and strong, to train them to face cheerfully the hardships of life, to make them smart, active as well as disciplined in their movements and work. So, we do not lay much stress on extraordinary development of particular muscles, but rather on the improvement of general health, strength, and ability. This purpose is best served by games and sports and drills of various kinds which are the main forms of physical culture in our school.

We also think that physical culture should develop the self-confidence of the girls, and make them brave and free. It should enable them to shake off the clogging bashfulness, characteristic of village girls, which is a great hindrance to improvement as well as a source of constant trouble to themselves and to others. An important part of physical education should be directed to training girls in arts of self-defence. In our school the results of this intensive form of physical culture have been highly encouraging. Unlike what one meets in a village, our girls are healthy, hardy, full of vitality and cheerfulness. Their smartness and boldness have not, however, been earned at the price of feminine grace and modesty. They have developed initiative and enthusiasm. They find joy in strenuous activity and have learnt to appreciate dignity of labour, whether it is working in the garden or cleaning the school premises and the school latrine.

Secondly, our idea is that physical culture loses half its benefit and all its charm if, from a false notion of modesty, it is conducted within the four walls of the school room. It is then sure to degenerate into a dreary, lifeless routine which the students would struggle to fly from. All the physical activities, of

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our girls are conducted in the open school compound or in the play ground newly purchased for the school. In fact, it is a sin to deprive village girls of the throbbing life of the playing fields, of free air and light and sunshine, which are a natural heritage to all village people. Physical culture should be a pleasant affair, mostly consisting of outdoor games and rhythmic exercises, which girls really enjoy with profit.

Thirdly, physical culture should not be an imposition from outside, but a thing of genuine interest gladly sought by the girls themselves. This result can be attained by transferring much of the direct control of physical education to the girls themselves, as has been done in our school. Our success depends on the interest and enthusiasm we have been able to rouse and maintain in our girls with regard to physical education which has come to be a source of attraction and enjoyment for them. Almost all the work connected with it is entrusted to the girls themselves. This is another reason why they love the school as a thing of their own making where they have so large a share of the responsibility of its management.

Fourthly, we have seen that physical education, to be productive of best results, should be based on a sound knowledge of the psychological and physiological peculiarities of the group concerned and should be varied according to the individual needs and requirements of every girl. Girls suffering from curvature of the spine and other physical deformities and defects should be given remedial exercises under the supervision of an expert physical instructor. All the girls should be medically examined at least once a year. Our experience shows, however, that there is no essential difference between the forms of physical education meant for boys and girls. Especially with regard to team games, athletics, drills and calisthenics, we have found them equally useful to our boys and girls who practise these things separately in their respective schools. Contrary to the fears generally entertained, these have never led to any undesirable hardening and stiffening of the bodies of our girls.

There are three main factors, we have seen, which commonly affect the efficiency of village girls' schools in both general and physical education; first, want of local enthusiasm; secondly, want of money; and thirdly, want of proper instructors. I shall briefly touch on these topics one after another.

It is unfortunate that village people have not yet been fully alive to the

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necessity of the education of their girls, specially of their physical education. Little do they realise that their girls require as much training as their boys, if not more. Women, they think, have nothing to do, nothing to think of, except their limited and specified duties within the narrow confines of their home. Sometimes, however, this apathy takes the form of active hostility. The so-called orthodox section considers physical education of girls not only useless, but dangerous. Consequently, they try to baffle the attempts of the school authorities who try to introduce it for the benefit of their girls. Under such circumstances the authorities have to exercise great moderation, patience and tactfulness in winning these people over to their side. It is here, especially, that education of parents and guardians, through discussion and gentle persuasion, and sometimes through firmness of determination, is as much a necessity as that of girls. Still, unfortunately, whole-hearted local sympathy is a thing scarcely to be attained in rural areas. Sometimes, it is difficult to ensure the sympathy of such people even by showing them definitely the amount of benefit that has resulted from the system of physical culture followed in the school. In our case, however, we have, happily, been able to assure them that emphasis on physical culture does not necessarily mean neglect of general education. For, no less than 22 of our girls won various Government scholarships during the last 8 years.

As regards the expenses of efficient physical education, the problem is half solved if the school can enlist the sympathy of the local people. For, it is not possible to make sufficient provision for it out of the games fund of the school. As in our case, additional sums have to be found from outside for better equipment and arrangement for the maintenance of a desirable standard. Where adequate funds are not available, expenses may, however, be much curtailed by greater organisation of indigenous games and free-hand exercises.

The question of proper instructors for the physical education of girls is really a difficult one. It is surely desirable to have a trained lady instructor in charge of physical welfare of girls. But, unfortunately, ladies are not yet available in the profession. So, girls' schools must, like our institution, require for the present the services of trained male physical instructors, thoroughly known and tried. Our practice of having the training done as much by girls themselves as possible, may be found helpful.

Those who have practical experience of rural work are fully aware of the difficulties that confront them at every step. Most of the energy is spent in finding funds, in overcoming the initial inertia or resistance of village folk who are slow in appreciating anything outside the traditional rut. Thank God, that inspite of the hostility of the so-called orthodox section we have always been able to stick to our ideal, mainly through the help and active co-operation of the Education Department, and that they are gradually coming to realise the value of physical education and becoming our supporter day by day.

Fortunately for all concerned, the Government of Bengal has of late given a great impetus to the physical education of girls through generous grants. It is really a happy sign, and is eagerly welcomed by those who have long been struggling on with the ideal of the physical well-being of the girls of our country. But for the keen interest taken by the Education Department in this matter, the efforts of the pioneers in this field would have failed to meet with general response from the people, and the enthusiasm of a few schools attempting this unpleasant task would have died out for want of local sympathy and support. It augurs well for the province, let me repeat, that the gospel of health and strength, especially relating to our girls, should be backed by active Departmental patronage, so long delayed.

Its effects, as manifested on all sides, are surely encouraging. For, the people of rural Bengal are now beginning to realise, though very slowly, that, for a reasonably happy future, their girls require, above all things, better health and stronger physique. We may now hope that the time is not far off when the physical education of girls will cease to be looked upon with suspicion as detrimental to the development of fine womanly qualities; when it will be regarded as one of the most vital needs of the nation requiring the conjoint endeavour of Government and the people for its fulfilment; a time—leading to a newer Bengal, full of happy homes of vigorous, hopeful, hardworking people, free from the pest of countless diseases that prey upon them to-day.

SCHOOL LIBRARY ORGANISATION.

By Miss E. RIVETT.

There's a rather drab part of the City of Sydney, down among the factories and warehouses, which boasts and well may boast of possessing one of the most delectable of centres for children. It is not a school, nor is it a play-ground but it is the children's very own Library, modelled somewhat upon the David Copperfield Library which existed until very recently in David Copperfield's which was indeed Dickens' own home in London. David says and it was Dickens' own experience, "I believe I should have been almost stupified but for one circumstance. It was this : A small collection of books in a little room upstairs, to which I had access, and which nobody else ever troubled. From that blessed little room Roderick Random, Peregrine Pickle, Humphrey Clinker, Tom Jones, the Vicar of Wakefield, Don Quixote, and Robinson Crusoe, came out, a glorious host, to keep me company. They kept alive my fancy, and my hope of something beyond that place and time." David's mind needed a play-ground as much as his body did. And those who have understood David's need and the need of all children believe that "A children's library will not only furnish a place of enjoyment and recreation for the child-mind, but it will serve as a work-shop in which to try out the intellectual tools that are sharpened and prepared at school."

Let us peep for a moment into that cheerful children's Library in Sydney. Colourful it is, truly. There are bright posters on the walls, posters from all round the world : low tables, themselves delightfully tinted, have masses of flowers in bowls of brass or pottery—sometimes they are arum-lilies, sometimes wattle, or rambler roses, or again dahlias, iceland poppies, lupins or a score of other glorious blooms of garden or wild bush. On the floors are mats from the South Sea Islands with gay borders and occasionally surprising touches of colour running across the more usual natural shade of the grass or palm-leaf of which they have been woven, by Samoan children for Australian children : on the mats dotted here and there are what the girls and boys themselves call

"humpies"—huge, round cushions, upon which they sit as comfortably as Miss Muffet sat upon her tuffet, and all round the walls on low shelves, so low that the smallest cot can reach, are book-shelves filled with books—carefully chosen fairy tales, stories of adventure, biography, fact and fiction, a great collection. Let us watch the children coming in, after school on a Tuesday or Thursday, earlier still on a Sunday. Here are two very small girls. Surely a Library is no place for them : they cannot possibly read yet. But they're no strangers here, apparently. They go first to the wash-bowls near the door, give their grubby little hands a good scrub and dry them on roller-towels which are themselves a series of colourful pictures. One of them then goes to a certain corner where she seems to be entirely at home, takes down a picture-book and settles herself on a humpy, prepared for a very happy time, enchanted by her book : the other joins a circle just forming, where a "story-teller" is picking up the threads of the fascinating tale she began with this little group a few days ago. Meanwhile older children are coming in. They pick out a book they know, or ask the Librarian's help in seeking a new one and read quietly until the hour comes for closing. Those older ones who have attended for a certain definite time, three months perhaps, and read and learnt to have a respect for books are permitted to take one home. "Property-owners in this locality should subsidise the children's Library handsomely," I heard someone say once, "In the years since its inception the neighbourhood has changed its character. There is a respect for property there never used to be. Little citizens there learn to take care of what is held in trust for them." "In my school", said the head-teacher of a large school near by, the boys and girls who go regularly to the Children's Library are distinctly in advance of the others in self-reliance, in originality and in knowledge and appreciation of good literature." The children have stories told to them, or read to them, they read themselves, and there is a directing mind, selecting and grading the reading, tho' that is not very apparent. Any visitor immediately feels that the happy atmosphere is attributable to the fact that the place is the children's own, and all the senior folk are their friends, interested in all that concerns them, and there for their sakes—their selves loving books and rejoicing that the children love them too and come simply because it is a happy, friendly place, filled with fascinating books for them.

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Now I know that Library pretty well and whenever I go there I can be sure the children will fall upon me for stories of India and more books of Indian tales. I do not think I could tell you much about the organisation, its cataloguing and card-indexing and all the rest of the modern machinery which characterises the world's great libraries. Whatever there is, is simple, and the least possible compatible with orderliness and the keeping of the books in good condition. What does strike one is the spirit of the place, the fact that it is a "a place of enjoyment and recreation for the child-mind" and "will serve as workshop in which to try out the intellectual tools that are sharpened and prepared at school."

I am not suggesting that we should, as schools, abandon our libraries and allow other, even well-meaning folk, to establish or ourselves establish Children's Libraries of the David Copperfield or the Sydney type. What I do want us for a time to consider is how we as teachers can get that spirit which shall inspire in our children a love of reading so that they will take books out of our Library, enjoy them, bring them back (a very important point!) and want more, and want more, eagerly.

Let us begin with the books themselves. I know schools that have wonderfully good collections of books, tidily placed on shelves, catalogued and classified, but they are in such musty fusty places that I am sure the Library matters not at all in the real life of the school, except perhaps when the inspecting officer comes along and can be shown the excellence of it all. In most of our libraries I feel sure if we were honest we would confess there is a good deal of stuff which cannot on any count be called literature : it has no point of appeal to our pupils, and is merely stored because, forsooth, it was given to us and does add a few more volumes to our register of Library books.

As I have travelled round India and heard the oft reiterated wail about the paucity of vernacular literature especially the dearth of books for children, I have been sure that Bengal stands high, perhaps highest of all, among the Provinces of India in this respect. Go into any good book-seller's and ask for suitable Bengali books for a school library and you will be overwhelmed by the quantity available. There are endless books of tales for small children, there are biographies, there are certain translations of English standard books of travel and adventure. Some deserve worthier binding, though one realises

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cheap production is important. There are a goodly number of children's magazines. There are the collected works of standard Bengali writers, mostly novels of social life suitable for the seniors. There is all the wealth of literature, prose and verse, which has qualified Bengal recently for what may well be called a Literary Renaissance. And yet, do we feel that, on the whole, our libraries are filled as children's Libraries should be with books the reading of which is going to bring them pleasure, is going to inculcate in them as they leave school a determination to go on reading? Have their minds stored with all that is best in the thought of their own land and that universal literature which belongs to every land?

Are we truly satisfied with our *books*? As our small children emerge from the Kindergarten, where, if they have been properly taught, they are thrilled to find they can read and long to read by themselves, have we short stories we can give them to read, in school or out of school, which will delight them and make them want to go on reading? I think the gift of story-telling is one which belongs rather specially to this country. How we have all delighted in those tales handed on from generation to generation by Thakur-ma! I wish the modern equivalent of the old-time Thakur-ma could spring up all over Bengal and be perhaps a teacher, certainly one who has a real sympathy with children, who in fact still retains the child-like mind, who will not only *tell* stories in the good old style, but *write* stories which the modern child can read and delight in. I know no greater contribution that could be made to Bengal's children than that of giving them in good, simple Bengali, well-printed and well-illustrated books. A certain Austrian woman as her contribution to international understanding recently started a series of books called "The World Library for Children". They are tales of Japan and China, stories of the Rhine, folk-tales of Russia, Greek stories, Swedish fairy tales, Estonian tales and many others, translated into many languages, but not yet, I think, into any of India's vernaculars. They are published by the new Education Fellowship at a penny.

There are other types of tale which belong to no one country but to the world, which still are not available to our boys and girls unless they happen to be able to read them in English. When I see month after month in such a periodical as "Child Education" the delightful series of stories, sketches of

life in many lands, accounts of thrilling exploitation and enterprise, with all the excellently reproduced pictures I rejoice to think that there are in Bengal many teachers who are using in their classes this material, because they know English and can readily turn it into Bengali. How often I wish such teachers would take the trouble to translate and where necessary adapt some such series, really well, and that some of the many well-wishers of children in the Province would be induced to print them, also really well, so that all of us might enrich our libraries to this extent. Perhaps some of you could indicate what is the incentive, hitherto lacking, that will inspire teachers, beginning may be with some in this audience to-day, to undertake in this or some other way to increase the number of attractive books for children which will help them to that love of literature which we desire them to have before they leave our school.

I would like to tell you of a school I know, not my own, by the way, where the staff have made a beginning in getting together daintily bound books which are the children's own and which they already delight to read. Interesting stories which form a good basis for history or geography, later on, stories of the boys and girls in other countries, tales of heroes and heroines—have been collected and translated and printed on a Gestetner machine, or written out by the children themselves; illustrations done on the Gestetner, in outline, have been coloured and each whole book has been bound by them or by their teachers. Beautiful hand-writing, appropriate design, a course in book-binding, and much else has gone into the making of these delightful volumes, large and small, and there is the nucleus of a real Children's Library.

And there on Saturday mornings staff and girls together are finding the way to that kind of library which is "not only a place of enjoyment and recreation for the child-mind, but will serve as a work-shop in which to try out the intellectual tools, that are sharpened and prepared at school". How often are beautiful little poems in school readers made to be merely dull material for dissection, and so laboriously do the children strive to learn the exact meaning of each word and phrase that the sheer beauty of simile and the music of rhythm are lost. Here during this Library-hour poems are read aloud in no toilsome text-book manner but to be appreciated as poetry and made part of the treasury of the mind, to be remembered because forsooth, they refuse to be forgotten. What a thrill for small children in Class I and even in the upper

Kindergarten to find in the Library a wee story, written in large characters which they themselves can read, almost unaided, and can read through to the end !

That attempt of providing the wherewithal for a vital library is a real inspiration and shows what can be done if we teachers in our schools will get together and see that we can if we will show the way to a living library and a living use of it. And that brings me to the heart of my subject. I'm not only concerned about the organisation of a library in terms of cataloguing and records showing borrower, date of borrowing, date of return, and all the rest of the detail which must be worked out to suit the particular school and yet is bound to follow a general pattern. What I am also concerned about is each individual teacher's organisation of that part of the Library with which his or her class should be conversant. I come to believe less and less in a room set apart as a school library, where pupils may go and read in silence and whence books may be borrowed and returned within a certain given time. That is beyond small children and I am not at all sure that it is not beyond most boys and girls except the very outstanding ones even in the upper High School classes.

I do believe in a library, a place apart, where there are books of reference for staff and where they may read and prepare for lessons and find the latest educational journals and all manner of material for illustrative purposes. But that is hardly what one usually designates a school library. No, I believe in decentralisation in many departments of life and most emphatically here. And I believe the teacher is the key to a more hopeful solution than most of us have yet reached. The idea of class-libraries is not new and it is along that line of development that I think progress lies.

Must we have enormous book almirahs with some shelves that are inevitably beyond the reach of the children? May we not plan our libraries in class-rooms and collect the books in Bengali and English more or less suitable for a class, in a case of perhaps one large section, attached to the wall at such a height that all can reach? If a teacher at any time wished to refer her class to a book in the Library of another class she would of course be able to borrow it for the class or for an individual in the class. The point is that the teacher should not merely know the books in her class library, but be able to add to it

from time to time books known to be appropriate and to which reference has been made in class, and above all consider it her privilege to introduce to the children in the class, from time to time and as occasion offers, one of the books collected there. We ourselves will read with considerable eagerness a book a friend has read and has told us about, whereas the same book merely seen on the shelf of a library might have no such appeal. That is similarly true with children. If a teacher during a lesson on China, for instance, can recommend to the class a delightful story of a Chinese girl or boy, or will take time to read aloud something from this book, and will frequently give this sort of introduction to books I believe we shall find our class libraries even in the lower school just as valuable educationally as most of our formal teaching, and the spirit of adventure into realms unknown will add greatly to the pleasure of the method.

I believe this decentralisation of the library would repay experiment. It could only succeed if teacher and children fared forth together upon the adventure. It might lead to the elimination of a certain amount of mere junk : it would ensure additions that were actively desired and therefore probably suitable : it would reduce to the minimum what is often drudgery in the giving out of library books and make it, instead, a matter of personal recommendation of a book by the teacher, enabling her to keep in touch with the reading of her class and to bring them more and more to know the enchantment of good literature.

Finally, as I see it, beyond the great need for more books for school libraries is the supreme need of teachers who as inspired book-lovers will make their love of reading positively infectious in their classes until the children one and all rejoice in their heritage of books and like David Copperfield have a glorious host to keep them company, to keep alive their fancy and their hope of something beyond.

SCHOOL LIBRARY

BY KHAN BAHADUR K. M. ASADULLAH

A school-library has been called a necessity for every self-respecting institution, or school, and it does require very elaborate logic to prove that the study of language and literature or any other subject without reference books is like the study of natural science without experiment. Such being the importance of the school library, we must see how many of our schools come up to the standard laid down, and what steps should be taken to see that every school worth the name possesses a library worthy of its standing.

AIMS. The aims of a school library may be summed up as follows :—

1. To encourage the habit of reading and research ;
2. To encourage the taste for good books ; and
3. To provide books of reference for all, and works by authorities for the specialists.

Let us examine these objects for a while before proceeding further with the subject.

The first object is quite obvious, that the students should not confine their attention to mere text-books, rather they should develop the habit of extraneous reading, under the guidance and supervision of their teachers. This habit, if inculcated at the earlier stage of the career of a student will stand him in good stead in the later stages of his life. Take for instance the case of a student who intends appearing in a public competitive examination, say for the I.C.S. or any other similar service. On glancing through the syllabus of the examination, you will find one big item "general knowledge". The acquaintance with every day topics, or with the rudiments say of Science or Economics, e.g. the Gold standard, or the Abyssinian question is not likely to be grasped by the student if he has not inculcated the habit of extra reading in the beginning of his educational career. Our students generally start studying this subject (General knowledge), if they have to appear at any of the said examinations at the eve of that. But even if one has no such intention viz. that of appearing at

a public competitive examination, where General Knowledge forms an essential part of the syllabus, it is to one's advantage to know what "horse power" means, and what "gravitation" is. Unfortunately, now a days, it is generally seen that a student does not konw where *Honolulu* is or what is Mississipi, or where the Canary Islands are. If you are in the habit of newspaper reading, it will be necessary for you to be acquainted with the situation of countries, towns, and cities, etc., in order to fully understand where "Makale" is or in what directions Abyssinia is surrounded by European possessions.

After creating a habit for extra reading, we have got to see that only desirable books are studied, and the students do not take to reading immoral fiction books, and at an early age develop unhealthy ideas. This is most necessary. While the habit of extra reading is being inculcated in the student, the director or the teacher should see that the taste of the student is also formed by and by, and that he spends his time usefully. It has been seen that students develop the habit of reading or studying books other than their texts, but some of them generally speaking are not desirable. It should be the duty of the teacher concerned to see that the boy or the girl read the proper type of books.

The third object is mostly for the benefit of teachers. They should get necessary help by the provision of reference books, although the students can also to a certain extent benefit by the consultation of reference books. They develop in this way a habit for finding out things for themselves, and which in some of them may lead to an eagerness for research. The "Dictionary of Phrase and Fable" if available in the school library, may induce a student to find out for himself the allusion that may occur in his or her lessons to a certain fable, or story, or even the teacher can tell the class to consult such and such book in order to know more about that story or fable. A dictionary of biography will be helpful to the student as well as to the teacher to know the chief events of the life of a hero of his country or nation, or to know the activities of a great religious or social leader of the time.

Accessibility to all. The library should be available for use to all, the students and the teachers without imposing too many restrictions. Of course, in the lower standards, the young ones cannot be expected to do extra reading, but they are always fond of reading stories. Consequently if some useful small books containing stories be made available to them, they too will form the habit of

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doing some extra reading. When we are making the library accessible to the teachers, we have to see that either the library is divided into two sections, one for the students and the other for the teachers, or certain works shall have to be earmarked for the latter.

Opinion however differs as to making newspapers available in schools. Personally, I would not place every newspaper in the hands of young ones. But good school magazines may be included, and only healthy fiction may be made available to students of mature age.

It has been seen that some students do not know the proper use of the library. In case of a library being provided in a school it should be imperative for a student to learn how to avail himself of the advantages offered, and how to find out books, or how to consult the catalogues. This knowledge forms an essential part of a good education.

Pictures are another item to be included in the school libraries, especially for younger ones. If the room where the library is located is furnished with pictures of great heroes, religious reformers, and others, this must have its psychological effect. Besides, these will make the room attractive, and also induce some of the students to come to the library, if for nothing else, at least to see the pictures. This very fact may one day induce such a student to ask for a book for reading, which has something to tell of his favourite hero. Pictures, planned according to a set plan may have their educational value. Take for instance the set of pictures of the Moghul Emperors, arranged in chronological order. A mere glance will teach a boy that Akbar was the third Emperor, and was the son of Humayun. His son and successor was Jahangir which will be shown by the picture following that of Akbar.

Again to induce the children to use the library, teachers should set them historical or literary problems which may necessitate the use of books other than their texts. If necessary, the teacher should give an idea to the students, as to where to find the required facts. In essay-writing, this practice will be especially useful. For this purpose, it is also necessary that the teachers should explain to their students the use of the catalogue, and how to consult it ; or how to find out books ; and still more necessary it is that they should draw their attention to really good books.

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A suggestion book for a school library would be as useful as it is for any other library. Let the students and teachers both make their suggestions for the purchase of books ; but the purchase shall be decided by a committee which may also utilise the services of specialists. The committee may not include teachers of all subjects, but when necessary, the advice of the geography teacher may be had for buying a few good or really useful geography books.

Along with the problem of acquiring books is connected the question of weeding out books which have outlived their value, or have been superseded by more authoritative works. For, after all, a school library is not expected to grow like a public library.

Management. The library should preferably be in charge of a teacher-librarian, who may be assisted in the performance of his duties by some intelligent and senior students. Here, it must be stated that according to a certain authority a "good librarian is born and not made." Hence, when making the selection of the librarian, due consideration should be given to the fact that he is a suitable person in all respects. But in spite of the fact that a good librarian, is born, and not made, it is essential that some sort of training be imparted to the librarian-to-be; because it is admitted now a days that librarianship is in itself an art and it does require education in its own way. For this purpose, it appears to me desirable that those teachers only should be made librarians in schools, who have undergone training for that purpose. And in order to train teachers in librarianship, I have to suggest the inclusion of a short course of librarianship in the syllabus of Teacher' Training Institutions, which if not compulsory for all may be made optional, and those who qualify themselves in that should ultimately be given charge of school libraries. For this purpose, I do not advocate the introduction of a very elaborate course of training in librarianship, but one extending over a period of say about two months will do. During this period, intending teachers should learn cataloguing, library routine, and classification. By way of practical training, they should be required to prepare catalogues of from 50 to 100 books during their training, in both dictionary and classified form. If this be not possible, at least some reading in librarianship should be made compulsory for any one wishing to take charge of a school library.

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Every student of the school should pay a small monthly fee towards the funds of the library or a lump sum fee at the beginning of the academic year. The school should also share the expenses of the library, and a 50-50 share of the expenses will not perhaps be unfair.

Catalogues, etc. No elaborate catalogues are required. These should be as simple as to be used even by a stupid student. An author catalogue on cards will perhaps be found more helpful. A shelf list will be a necessity, which will also serve the purpose of a classified catalogue, if not also of a subject catalogue in a way. But subject entries for main subjects may be incorporated along with the author, and some well-known titles, to make it a dictionary catalogue.

Books may be lent for a definite period, say for a week or fortnight ; but there may be books which should be lent for a much shorter period, or even for overnight. No infallible prescription to prevent loss of books has been discovered as yet, but this is generally due to carelessness, if not to any other cause.

The subjects to be included in a school library will be literature, including collections and specimens of poetry and prose ; standard biographies ; lives of great authors ; diaries and letters of eminent persons. Apart from this, books of history, travel, exploration will be suitable additions to the collection. Costly or limited edition books are not to be purchased. Always be careful of keeping up the standard.

The school must provide a separate room for housing the library, which should be furnished with decent library furniture. If necessary, the Education Department may issue for the guidance of those in charge of school libraries, a list of suitable and approved books to form the nucleus of the library. Rules for controlling the library should be liberal. If a school can't afford to lend out or take back books every day, it may do so once or twice a week, on fixed days. It should be impressed upon the students that they should keep the books clean and undamaged. For, apart from saving books from damage, it will induce them to form habits of cleanliness and tidiness. Punishment for violating any of the library rules should be to debar the student from the use of the library for a short time.

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

These in short are the lines on which a school library may be organised and run ; but changes are possible according to the requirements of every school and institution. Let us hope that with the spread of education in Bengal and the increase in the number of schools, it shall not be forgotten that a school without a library is not a perfect school.

স্কুল লাইব্রেরী

শ্রীপতাত কুমার শুধুপাধ্যায়—শাস্তিনিকেতন, বীরভূম

আজ আপনাদের কাছে আমাকে স্কুল লাইব্রেরী সহকে কিছু বলবার জন্য অহুরোধ এসেছে। পঁচিশ বছরের উপর আমি বিষ্ণুভারতীর গ্রন্থাগারের সঙ্গে ও সেখানকার অধ্যাপনের সঙ্গে যুক্ত রয়েছি। কেবল যদি লাইব্রেরীই আমার পেশা হতো, তাহলে হয়ত আপনাদের কাছে বলবার বোগ্যতা সহকে আমার নিজেরই সঙ্কোচ হতো; কেবলমাত্র শিক্ষকতা করে লাইব্রেরীর কাজ যদি করতাম উপরিভাবে,—তা হলেও হয়তো বলবার মতো কিছু থাকতো না। শিক্ষকতা ও লাইব্রেরী সহকে এমন একটা কিছু অভিজ্ঞতা লাভ করেছি যা' হয়তো এখানে আমাকে আসবার অধিকার দিয়েছে এবং সেই কারণে বোধ হয় আপনাদের এই 'শিক্ষা-জনসা'র কর্তৃপক্ষ আমাকে কিছু বলার জন্য আহ্বান করেছেন।

স্কুলে লাইব্রেরীর প্রয়োজন আছে, সে-সমস্কে দ্বিমত হবে সেটা কেউ আশা করি নে; এবং সে-বিষয়ে কাউকে দীর্ঘ বক্তৃতা দ্বারা বুবাবার প্রয়োজন আছে বলেও মনে করি নে। ঘরে আলোর দরকার, ঘরে বাতাসের দরকার একথা অতি বড় দীনকেও বোঝাতে হয় না; তেমনি ছেলেদের পড়বার জন্য বই চাই, লাইব্রেরী চাই—একথা অবিস্মাদী, স্মৃতিরং সেটা মেনে নিয়েই অন্য কথা পাড়া যাক।

প্রথমেই একটা বড় কথা তুলতে চাই: শুনেই আপনারা বলতে পারেন বড় কথা তোলা নিষ্প্রয়োজন, কারণ truism বা হেঁদো কথা অনেক শোনা আছে, দরকার কেজো কথা বলা। Truism শুনবো না বলে পণ করে বসা একরকমের গোঢ়ামি যা ত্যাগ করতে উপদেশ দেওয়া যেতে পারে। এই গোঢ়ামির জন্য অনেক সময়ে আমরা কাজ করি দিশা-হারা হয়ে—উপরটাকে ভাবি উদ্দেশ্য, পথটাকে ভাবি আশ্রয়। তাই খেকে খেকে অতি সোজা কথাও নিজেদেরকে মাঝে মাঝে শুধুবাবৰ দরকার। তাই সেই

অতি পরিচিত truismই বলছি—নিজেকে সেই প্রশ্ন করছি—“আমরা ছেলেদের কাছ থেকে কি আশা করি, অর্ধাং তামা কি হবে সে বিষয়ে আমাদের ধারণা কি এবং আদর্শ কি?” কারণ তার উপরই নির্ভর করছে—আমাদের শিক্ষা-প্রগাঢ়ী—পাঠ্য অপাঠ্য বই সম্বলন, পাঠ্য অপাঠ্য বিষয় ও বস্তু নির্বাচন, পাঠ্য অপাঠ্য বই মুজল, প্রচার ও সেগুলিকে পড়ার জন্য ছেলেদের উৎসাহ দান বা নিঃসাহ করণ—সব নির্ভর করছে এই attitude-এর উপর।

পড়ানোর আদর্শ কি সে-সম্বন্ধে অনেক সময়ে গভীরভাবে চিন্তা করার অবকাশ আমাদের থাকে না ; তবে উদ্দেশ্য সম্বন্ধে হোট থেকে বড় পর্যন্ত—ছাত্র থেকে অভিভাবক পর্যন্ত সকলেই একমত। তাই ‘আদর্শ কি’—এ প্রশ্নের উত্তর পাশ কাটিয়ে—‘উদ্দেশ্য কি’ সে বিষয়ে উত্তর দিই। তাই সোজা জবাব বলি, ‘ছেলেরা ভাল করে পাশ করবে এই হচ্ছে আসল উদ্দেশ্য ; সেই কাজের জন্য আমরা নিযুক্ত, সেই কাজের জন্য বেতন পাই—অতএব আমাদের প্রধান ও প্রথম কর্তব্য ছেলেদের পড়ানো ও ভাল করে পাশ করানো এবং এ বিষয়ে মতভেদ নেই। কিন্তু প্রশ্ন এই কি সব? এর উপরেও কিছু চাই না? নিশ্চয়ই। ‘এহ বাহ—আগে কহ আর।’

আমরা খিদে পেলে খাই—একথা খুব সত্য ; কিন্তু সে খাওয়ার উদ্দেশ্য কি কেবলমাত্রই উদ্দেশ্য পৃষ্ঠি? না, তার চেয়েও কোনো বড় কথা পিছনে আছে? আছে বৈকি। আহারের প্রধানতম উদ্দেশ্য হচ্ছে স্বাস্থ্য গঠন ; সেই স্বাস্থ্যের জন্য ভোজন, ভোজনের জন্য রক্ষন। স্বাস্থ্য গঠন হচ্ছে সমাজের আদর্শ, ভোজন উদ্দেশ্য, রক্ষন উপায়। স্বাস্থ্য গঠন করবার জন্য যে ভোজ্য বস্তু দেওয়া হয় তাহা সুখাদ্য করবার প্রয়োজন আছে বলেই রক্ষন কলা সর্বদেশে সমাদর লাভ করেছে। মানুষ রসনা থেকে রসকে বাদ দেয় নি। শিক্ষার আদর্শ সম্বন্ধে বর্তমানে বিচারটা মূলতুরী রাখলাম ; শিক্ষাকে সুখাদ্য করবার প্রয়োজন আছে কি না এইটাকেই বিচারের জন্য খাড়া করা থাক।

বৈজ্ঞানিকেরা বলেন খাত সুস্থান হ'লে শারীর ধর্মের ক্রিয়া আহারের সঙ্গে সঙ্গেই সুস্থ হয় ; আর খাত যতই পুষ্টিকর হোক তা' যদি অকৃচির সঙ্গে খাওয়া ও অশ্রদ্ধার সঙ্গে দেওয়া হয়, তবে তাহা শরীর এহণ করে না। কলে যা' হ'তে পারতো রস, তা' হ'য়ে ওঠে বিব। বিষাদান সম্বন্ধে সে কথা

বর্ণে বর্ণে থাটে। ছেলেদের উপকার করবো বলে পড়ার বই ঠেসে পড়িয়ে মনে করলাম উদ্দেশ্য সফল হোলো; কিন্তু যখন দেখি পরীক্ষায় যে-ছেলে উৎকলো ভাল ভাবেই—জীবনে সে-ছেলে শুধু ‘ভালছেলে’ নাম নিয়ে চলে গেল—তার বেশি সে কিছু করলে না, সমাজের অণ শোধ করলে না—তখন মনে কি বিচাদান সম্বন্ধে কোনো সন্দেহ হয় না? তখন কি মনে হয় না যে উপায়, উদ্দেশ্য ও আদর্শ মধ্যে কোথায় একটা জট পাকিয়েছে, নইলে এমন tragedy হবে কেন? যে-ছেলে স্কুলে বোল ঘটা পড়তো—যে-ছেলে ছিল ডানপিটেদের ঈর্ষাঙ্কল, স্কুল মাষ্টারদের আদর্শঙ্কল, বাপমায়ের ভরসাঙ্কল—তাকে বড় হ'য়ে দেখি মা-সরবরাতীর সঙ্গে তার ভয়ানক অসহযোগ; এমন কি যে চাকুরীতে ঢুকেছে—সেই পেশা সম্বন্ধে বইগুলোও পড়ে না। এই ট্রাঙ্গেজীর মূল কারণ জ্ঞানের জন্য অভিজ্ঞতা তার আসলে জয়েনি। আমরা স্কুলে পড়াটাকেই একান্ত করে দেখেছিলাম, জ্ঞানটাকে নয়; ছেলে স্কুলে পড়েছে পাশের জন্য, জ্ঞানের জন্য নয়; পড়া তাকে আনন্দ দেয় নি, তৃষ্ণি দেয় নি,—তার মনের জ্ঞানকোষকে উত্তুন্ত করে নি। তাই পাশ করা হ'য়ে গেছে—যাহা কাম্য অর্থাৎ বিজ্ঞ বেচে পয়সা রোজগার তা' হচ্ছে, তখন তার কাছে পড়াশুনার আর কোনো প্রয়োজন থাকে না; জ্ঞানের জন্য সে কোনো দিন পড়ে নি, আনন্দের আবেগে পড়ে নি, পড়েছিল বাইরের তাগিদে। পড়ার সঙ্গে আনন্দ দেবার চেষ্টা আমরা করি নি—আমরা কর্তব্য করেছি, ছেলের কাছ থেকেও কথে কর্তব্য আদায় করেছি; তার প্রাপ্তের সমস্ত রস শুকিয়ে মেরে দিয়েছি; ফলে তার মূলধনে দেউলা প'ড়ে গেল, যখন সে বের হলো পাশ করে। সকলেই জ্ঞানেন আমরা যে পরিমাণ আহার করি, তার অনেকখানিই বাজে খরচ; সে পরিমাণটা যদি পরিপাক করতে পারতাম, তবে দেহটা হতো পাঁচগুণ! কিন্তু প্রকৃতির নিয়ম এই যে আমরা প্রয়োজনের অতিরিক্ত খাই বলেই জীবন ধারণ করতে পারি—এমন কি শ্রীর যে সব বস্তু আদৌ ধারণ করতে পারে না, তাও আহারের সঙ্গে উদরে প্রতিদিন যাচ্ছে এবং সেগুলি নিছক আবর্জনা ব'লে বৈষ্ণবী মনে করেন না।

আর তা ছাড়া, জীবনের কোনু ক্ষেত্রে আমরা প্রয়োজনকেই চরম বলে স্বীকার করেছি? আহারে ষেমন নয়, বেশিরভাবেই কি প্রয়োজনাতিপিককে

সাজসজ্জাকে সভ্যতা বলে মনে করি নে? বাড়ীয়র ইমারতেও সেই একই কথা। জীবনের সমস্ত কোঠাতেই প্রয়োজনকে ছাপিয়ে আচর্যকে গ্রহণ করি; আর কেবল বিষ্ণুদানের বেলায় আমাদের ক্ষপণতা হবে কেন? সেখানে হতভাগ্য ছাত্র পাঠ্যচক্রের ধানিগাছে বাঁধা হয়ে কেবল পুনরাবৃত্তি করে যাবে? সেইটা হবে শ্রেষ্ঠ? সুতরাং বিষ্ণুদানে ও জ্ঞান আহরণে অপ্রয়োজনকে একটা বড় স্থান দিতেই হবে, এবং সেই অপ্রয়োজনের প্রয়োজন হচ্ছে বিষ্ণুলয়ের লাইব্রেরী। প্রয়োজনের নিষ্ঠিতে যেখানে ছাত্রের জ্ঞান ও বিষ্ণুকে মাপা হবে না—যেখানে ছাত্র আপন মনে বিচরণ করবে—খাত্ত সংগ্রহ করবে—সেই মূল্যবৰ্ত্তন ক্ষেত্র হচ্ছে লাইব্রেরী। আমি কলেজের ছাত্রদের অনেক সময় বলি go and browse about in the library.

কল্কাতায় stall-fed অর্ধাং গোয়ালের ছানিজ্বাবখেগো গোকু বেশি দিন দুখ দেয় না—একথা সকলেই জানেন। অথচ তারা যে খাবার পায়, তা' নিতান্ত খারাপ নয়, এবং তার দামও বেশ! কিন্তু এত যত্নেও যে জন্ম গোকু পোষা, তা হয় ব্যর্থ, অর্ধাং দীর্ঘকাল দুখ পাওয়া যায় না। তার কারণ গোকুর স্বাস্থ্য শুধু খাত্তে নয়; তার আগ চায় খোলা আকাশের তলায় অকারণ দোড়তে, সে চায় মাঠে থেকে ছিড়ে ছিড়ে ঘাস খেতে। এই চরবার আনন্দেই তার স্বাস্থ্য গড়ে, কেবল ভূষি খলে নয়। উপমাটা খারাপ, কিন্তু আমাদের স্কুলের ছাত্রদের দশটা ঠিক এই রকমই দাঙ্গিয়েছে। তারা পাঠ্যতালিকার সমস্ত বই ভাল করে দশবার পড়ে, চিবিয়ে শেষ করে, রোমশ্বন করে, আবার পড়ে—হাজার পৃষ্ঠার টেষ্ট পেপারের প্রশ্নগুলোর উত্তর উৎসাহী শিক্ষক ও ততোধিক উৎসাহী অভিভাবক ও প্রাইবেট টিউটরের চেষ্টার সমুদয় লিখে ফেলেন; কিন্তু এত করেও দেখা গেল—সাধারণ জ্ঞান, সহজ জ্ঞান—তাদের আয়ত্ত হয় নি। এত বড় ট্রাইজেডি কোনো দেশে কোনো ছাত্রের জীবনে ঘটে! এ ট্রাইজেডির অর্থ কি? এখানেও সেই stall-fed গোকুর সঙ্গে তুলনা করতে ইচ্ছা করে। ছাত্র চিরজীবনটা text-book আর পরীক্ষার খাড়া পাহারার মাঝে মাঝুষ হোলো—বিশাল লাইব্রেরীর মধ্যে চুকে একদিন browse করে খাবার আনল পেলো না; এত বড় ছৃঙ্গাগ্র সে! কোনো দিন একটা বইএর পাতা খুলে মনটাকে খুব সজোরে সাড়া

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

দেয়—এমন ঘটনা—এমন ideas সঙ্গান সে পেলো না। তার ঘোলটা বছর কেটে গেল এইভাবে। খুব একটা বড় রকমের খোকা হয়ে সে ঢুকলো কলেজে। কিন্তু সে যদি সত্যই খোকা থাকতো তবে হংখ ছিল না; শিশু মন অনেক-কিছু গ্রহণ করতে পারে; কিন্তু ঘোল বছরের ছেলের মন কি একেবারে নিশ্চল ছিল? অজ্ঞাতকে জ্ঞানবার জন্য, অনাগতকে অসুভব করবার জন্য, ভেতর থেকে এসেছে তার তাগিদ। অকারণে সে হয়ে উঠে চঞ্চল। তখন সে বই পড়ে লুকিয়ে, কবিতা লেখে লুকিয়ে, বন্ধুত্ব করে গোপনে, চিঠি লেখে গোপনে। যেগুলো হতে পারতো তার জীবনের (healthy pastime) স্বাচ্ছ্যের খোরাক, সেগুলো হ'য়ে দাঢ়ালো একটা গোপন নিষিদ্ধ বস্তু ও বিষয়ের জন্য অসুস্কান। তখন কোথায় কার কাছে কি বই আছে—তার সঙ্গানে সে বের হয়। স্বাভাবিক জ্ঞানস্পৃহা, বয়সের Romance—নিল অস্বাভাবিক পথ। সঙ্গানটা হ'য়ে দাঢ়ালো ভৌষণের জন্য, বীভৎসের জন্য। জীবনটা আকৃষ্ট হলো বিপথে অথবা বিপদের পথে।

এর থেকে তা'কে মুক্তি দিতে পারে কে? যা মুক্তি দিতে পারে—তা' নিয়ে নহে, তা পীড়ন নয়, তা ছাত্র-দলন নয়, তা সন্দেহ নয়, তা পাহাড়া নয়, তা আভ্যন্তরীণ নয়। তাকে মুক্তি দিতে পারে আমাদের স্নেহ—যে স্নেহ চৌক বছরের অপরাধ ও উচ্ছত্যকে সহ করতে পারে, কোমল হস্তে সকল জ্ঞানের পথে নিয়ন্ত্রিত করতে পারে এই কিশোর মনকে। তার মুক্তি হবে বিশাল জ্ঞানের ভাণ্ডারে বিরাট কর্মশালায়—যেখানে সে পাবে তার Adolescent দেহের কর্মকূশলতার স্বয়েগ। তার বন্ধুত্ব করবার স্পৃহাকে Link of the Empire অথবা অহুরূপ কোনো প্রতিষ্ঠানের ভেতর দিয়ে স্মৃতির একটা জ্ঞানের ও আমোদের বিবর্জন করতে পারা যায়।

গুনেছি কোন একজন বিশিষ্ট ব্যক্তি র্বেবনারস্টে মদ থেতে শেখেন; তার পিতা সে ধৰন পেরে তাকে ডেকে বলেন, মদ যদি থেতে হয় ত' আমার সঙ্গে বসে থাও। আর একজনেদের কথা জানি; তাঁদের পিতা ছেট বেলায় তাঁদের কাছে বিস্তর বাঙ্গলা উপন্যাস ও গল্প পড়ে শেনাতেন। পিতা কোথায় কোনটার কি বাদ দিয়া পড়ে যেতেন, হেলেরা তা বুঝতো

না ; তবে মোটের উপর সমস্ত জিনিষটা তাদের ভাল লাগতো এবং তারা পিতার কাছে থাকতে ভালবাসতো ।

এ সমস্তার সমাধান কিন্তু পরিমাণে করতে পারে বিভাগয় ; বিভাগয়ের কর্তৃপক্ষের প্রয়োজন কিশোর প্রাণের সম্মুখে স্মৃতি সাজিয়ে ধরা, একটা atmosphere বা পারিপার্শ্বিক আবহাওয়া গড়ে তোলা । এবং এ কাজে প্রধান সহায় হতে পারে স্কুল লাইব্রেরী । সেখানে থাকবে তাদের অবাধ গতি, সেখানে পাবে তারা তাদের রসের খোরাক—কেবল শুকনো রুটিন work নয় । সেখানে সে individual—সেখানে সে classএর Roll number নয়, বিভাগারের ৬৯ও নয় ।

এর পরে প্রশ্ন উঠলো লাইব্রেরীতে তাদের জন্য কি থাকবে ? কি ধরণের বই তারা পড়বে—এইটে হচ্ছে আজকাল অভিভাবক, শিক্ষক, সকলেরই প্রধান ভাবনা । এমন কি গবর্নেন্ট পর্যন্ত চিন্তাবিত হয়ে উঠেছেন । সরকারী চেষ্টায় অনেক বই লাইব্রেরী থেকে নির্ধারিত হয়েছে ; কিন্তু আরও দের বই আছে, যা ক্রিমিন্যাল amendment ৫০টের মধ্যে পড়ে না, অথচ সেগুলি কিশোরদের হাতে দেওয়া যেতে পারে কি না, সে সম্বন্ধে মতভেদ আছে । পুস্তক নির্বাচণ অবশ্য কর্তৃপক্ষেরা করেন ও করবেন, যেহেতু তারা অভিভাবক ; পুস্তক নির্বাসনও তারা করবেন, যেহেতু তারা হিতাকাঞ্জী । এই কাজে তারা কতকগুলি মাঝুলি মত (convention) মেনে চলেন ।

এই বইবাহা সম্বন্ধে ছই একটা কথা বলতে চাই, কারণ এইটাই হয়েছে আজকালকার স্কুল লাইব্রেরীর সব থেকে বড় সমস্যা । আবার সেই প্রশ্ন তুলছি—আমাদের উদ্দেশ্য কি ? আমরা কি আমাদের শিক্ষার্থীদের আমাদের Replica বা প্রতিমূর্তি করে গড়ে তুলতে চাই—না আমরা যে যুগকে তৈরী করতে বর্তমানে চেষ্টা করছি তাদের সেই যুগের উপযোগী করতে চাই ? মাঝবের ভয়ানক দুর্বলতা যে, সে চায় তার অধস্তুন পুরুষের কাছ থেকে তারই যুগের প্রতিক্রিন্ম শুনতে ! সে যেমন পিতৃ পিতামহের নির্দিষ্ট পথ বেঁয়ে চলে ! আমরা যেমন বাপপিতামহের বাড়ী জিটের মাটি কামড়ে পড়ে থাকতে চাই, তেমনি চাই তাদের মতও বিখাস আঁকড়ে ধরে থাকতে চির কালের মত । আমরা তুলে ধাই যে আমরা পিতাপিতামহের বাঁধা পথ

বেয়ে চলছি না, তাঁরাও চলেন নি, তাঁদের যুগ বহুতাবী পিছিয়ে গেছে। তেমনি আমার সঙ্গে আমার ভাবীপুরুষদেরও ব্যবধান অনাগতের মধ্যে রয়েছে। আমি বিংশ শতাব্দীর প্রথম ভাগের মাঝুষ, আমার শিক্ষা দীক্ষা বা কিছু হয়েছে তা ভিট্টোরিয়ান যুগের শিক্ষক ও অভিভাবকদের দ্বারা হয়েছে। আমি ত এই উপাদানে গঠিত। আমি তৈরী করছি বিংশ শতাব্দীর মধ্যকালের ভাবী কালদের। আমার কাল ত শেষ করে এনেছি। যাদের শিক্ষা আমরা দিচ্ছি—তারা হবে ভাবী কালের মাঝুষ। আমাদের যুগের সমস্যা তাদের কাছে ঐতিহাসিক ঘটনা মাত্র মনে হবে। সুতরাং প্রধান উদ্দেশ্য হচ্ছে তাদের ভাবী কালের জন্য প্রস্তুত করতে—আমাদের কালের জন্য নয়। আমাদের কালের চিন্তা ভাবনা বা প্রচীন কালের ভাবনারাজি যদি ভাবী কালের উপর চাপিয়ে দেবার চেষ্টা করি, তবে আমরাও সেই অপরাধে অপরাধী হবো যে অপরাধ আমাদের পূর্বপুরুষরা করেছেন তাঁদের বিখ্যাস, তাঁদের ভয় তাঁদের মত আমাদের দ্বাড়ে চাপিয়ে। পঙ্ক মন পঙ্ক দেহ অপেক্ষা ভয়াবহ।

সেই জন্য আমার অনুরোধ আমরা স্কুল লাইব্রেরীর পৃষ্ঠক নির্বাচন করতে গিয়ে সে অপরাধ যেন না করি; হেঁয়ারুঁয়ি, বাচাবাছি স্বাস্থ্যের জন্য প্রয়োজন; কিন্তু সেটা যেন অক্ষ সংস্কারের বশে না করি। আমরা যেন ভাবী কালের citizen তৈরী করবো—এই কথা না ভুলি।

আদিম জাতের মধ্যে আবার ব্যবহারের কড়াকড়ি ভয়ানক; তারা নিখুঁত ভাবে নিজেদের পুনরাবৃত্তি করে চলে, দেহে ও মনে। সহস্র সহস্র বৎসর পূর্বের আদিম জাতি—অতি আধুনিক কাজেও সেই একইভাবে আছে। তাঁদের মত কুলীন জাত কেউ নয়—বাইরের আবহাওয়া ও হেঁয়াচ থেকে নিজে-দের ঠেকিয়ে রেখে—সহস্র বৎসর তাঁরা বেঁচে আছে। কিন্তু বাইরে থেকে যখন প্রবল ঝড় সব ভেঙেচুরে ঘরে প্রবেশ করে, তখন তাঁরা সে ঝাপটা সামলাতে পারে না, ধরিত্বী থেকে তাঁরা বিলুপ্ত হয়ে যায়। অথবা বিলুপ্ত না হলেও আধুনিক হয়ে বেঁচে থাকে, অথবা নিজের শক্তি বিসর্জন দিয়ে বাইরেকে অচুরণ ও অচুকরণ করে অস্ত নামে জগতে চলতে থাকে। আমরা চাই না যে সেই আদিম জাতের মতো আমাদের বংশধরেরা কেবল আমাদের পুনরাবৃত্তি করে

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চলবে। ভাবী কালের জন্য তৈরী করবার বাধা যেন স্থিতি না করি, ভাবী কালের চিন্তা থেকে তাদের বঞ্চিত করে না রাখি।

তখনই প্রশ্ন ওঠে—তবে কি Guidance-এর প্রয়োজন নেই, আমাদের এক মুগ ঘুগাস্তের অভিজ্ঞতার অধিকারী তারা নয়? Laissez faire বা যেমন খুন্সি তেমনভাবে তারা চলবে? না, সে কখনোই না। শিক্ষায় laissez faire হতে পারে না, কারণ সত্যই ত'—আমরা একটা চলমান social will-কে কল্প দিতে চাই এবং তার স্তুতি যেন ছিল না হয়, সেটা আমাদের সকলের আন্তরিক ইচ্ছা। যেমন খুশি তেমনভাবে চলাই যদি সত্য পথ হতো, তবে প্রকৃতির ক্রোড়ে মাঝুষ হওয়া সাঁওতাল ছেলে হতো সব চেয়ে বড় Naturalist; সেই হতো ছনিয়ার সেরা Botanist। তা তারা হয় নি—এবং হবেও না। স্মৃতিরাঙ্গ Guidance চাই। তবে সে Guidance এমন হবে না যাঁতে তার ব্যক্তি স্বাতন্ত্র্য নষ্ট হয়। যেখানে ব্যক্তি নয়,—একটা (class)-কে শেখানো হচ্ছে রীতি—সেখানে একটা সজ্ঞফল (mass result) সকলে আশা করেন—শতকরা ফল (percentage) চান, গড়পড়তার হিসাব (average) চান, ইত্যাদি। Class system ত আমরা হঠাতে ওঠাতে পারি না—অথচ individual যায় কোথায়? তার ব্যক্তি-পূরুষের আল্পপ্রকাশের জন্য? Individualকে মুক্তি দিতে পারে Library—যেখানে সে একা। সেখানে সে সহস্র নীরব শিক্ষকের সংস্পর্শে আসবে। ব্যক্তি স্বাতন্ত্র্য বাড়বার এমন স্থযোগ তাকে কোনো institution দিতে পারে না। একেই বলে atmosphere।

সমস্ত বিদ্যালয়টার মধ্যে পড়বার জ্ঞানাবেষণের একটা আবহাওয়া থাকা চাই—কেবল পড়ানো নয়—আমাদের বর্তমান ঘৃণের শিক্ষার বিকল্পে বড় রকম অভিযোগ যদি কিছু থাকে, সেটা হচ্ছে—too much teaching—; এ দোষ স্কুলে কলেজে সর্বত্রই বিভাগে। বিশেষ দরকার এর থেকে ছেলেদের মুক্তি দেওয়া। Library work শিক্ষা পক্ষতির একটা অঙ্গ হওয়া চাই—যেমন কলেজে Laboratory work করতে হবে নিয়ম আছে—তেমন কিছু হবে।

কিছুকাল পূর্বে বিজ্ঞান শেখানো হতো black board-এ ছবি এঁকে ; ছেলেরা গ্যাল্যারিতে শাস্ত্রভাবে ব'সে অধ্যাপকের বক্তৃতা শুন্দেশ ও experiment দেখতো। এখন সে যুগ চলে গেছে। এখন ছেলেরা কলেজে চুক্তেই বিজ্ঞানাগারে

গিয়ে কাজ শুল্ক করে। কোনো কোনো জায়গায় স্কুলেই হেলেরা test tube ও flask ভাঙতে শুল্ক করে। এর ফল যে শুভ হয়েছে সে কথা বলতে হবে না।

স্কুলে অধ্যাপনার পরীক্ষাগার হবে এই লাইব্রেরী। ছাত্রেরা শুধু ঝাসে পড়া শুনবে না। তারা লাইব্রেরীতে বসে পড়বে। একটু কম পড়িয়ে, পড়বার অবকাশ বেশি দিলে হেলেদের বেশি উপকার করা হবে।—ব'সে ব'সে পড়া শোনার মধ্যে মনের একটা নিঞ্জিয় ভাব গঁড়ে ওঠে। সকালে সে ঝাসের পড়া করে অভিভাবক বা গৃহশিক্ষকের সামনে বসে, দুপুরে পড়া দেয় স্কুলের শিক্ষকদের কাছে, রাত্রেও পড়া করে স্কুলের জগ্নি। সমস্ত সময়টা বাঁধাধরা কাজের মধ্যে ঠাসা Individual work-এর প্রগতি যে আশাহৃৎপ হয় না তার একটা কারণ তার অবকাশের অভাব ও স্কুলে লাইব্রেরীর অভাব।

সেই জন্য আমার বক্তব্য এই যে, গবর্ণমেন্ট যদি এ বিষয়ে সজাগ হন তবেই এ অভাব দূর হতে পারে। স্কুল বাজেটের মধ্যে লাইব্রেরীর খরচটা ধরতে হবে এবং সে টাকাটা যেন একজন শিক্ষকের বেতনের চেয়ে কম না হয়। কেজো ভাবে জিনিষটা দেখি। ধরা যাক একটা স্কুল ৩০০ ছেলে আছে। মাসে এক আনা করে ছাত্ররা দিক, এক আনা করে কর্তৃপক্ষ দিন, ও এক আনা করে গবর্নেন্ট বিশেষ দান করুন লাইব্রেরীর জন্য। ফলে মাসে প্রায় ৬০ টাকা লাইব্রেরীর বইএর জন্য খরচ করা যেতে পারে। বছরে বছরে সাত শ' টাকার বই কিনতে পারলে অচিরে কাজচলা গোছ লাইব্রেরী গড়ে উঠবে। কিন্তু মফস্বলের লাইব্রেরী যতই গড়ুক আজকালকার শিক্ষিত শিক্ষকদের চাহিদা মেটাতে তারা পারবে না। শিক্ষকদের নৃতন নৃতন বই, মাসিক থেকে বাধিত করে পাড়াঁয়ে রাখলে, তারা অচিরে হবেন ‘আম্য পণ্ডিত’। সে ভাবে তাদের প্রতিও অবিচার করা হবে, কারণ শিক্ষকদের মানসিক প্রগতিতে ছাত্রের উন্নতি। অথচ কোনো মফস্বল স্কুলের সে-সাধ্য নেই যাতে করে শিক্ষকদের সে-ক্ষমা ও প্রয়োজন মেটাতে পারে।

সেই জন্য আমার আর একটি প্রস্তাব আছে। কলিকাতায় একটা কেন্দ্র হবে সমস্ত বাংলার স্কুল লাইব্রেরীগুলিকে সাহায্য করবার জন্য। এন্দের central library থেকে মফস্বলে বই ধার দেওয়া হবে। এই কেন্দ্রে থাকবে একটা Information Bureau,—মফস্বল স্কুলের শিক্ষকদের প্রশ্নের জবাব

দেবেন এই কেন্দ্র। এই জন্য এই Board-এর অধীন থাকবে একটি শিক্ষিত staff, যাদের কাজ হবে classified list of books, periodicals and magazines of subjects, তৈরী করা। মাসিক পত্রিকাগুলিতে যে সব প্রবন্ধ প্রকাশিত হয় তার classified index তৈরী থাকবে এই আপিসে। বাইরে থেকে কেন্দ্রো শিক্ষক জানতে চাইলেন খবর—‘মহেঝেদেরো সম্বন্ধে’ সচিত্র লেখা বাংলা বা ইংরেজিতে কোথায় বের হয়েছে—ছেলেদের সে সম্বন্ধে বলতে চান—Marshall-এর বই পাওয়া ছাঃসাধ্য—এবং তার থেকে পড়ে কিছু বলা আরও অসম্ভব। সুতরাং তার প্রয়োজন সংক্ষিপ্ত একটা প্রবন্ধ। কেন্দ্রীয় বোর্ড থেকে তাঁর কাছে খবর পাঠিয়ে দেওয়া হলো—অযুক্ত কাগজে অযুক্ত বৎসরে অযুক্ত মাসে এ সম্বন্ধে খবর বের হয়েছে। শিক্ষক জানালেন সে পত্রিকা তাঁদের স্কুলে নেই। তখন কেন্দ্রীয় বোর্ড তাঁকে সেই পত্রিকা যোগাড় করে দিলেন পাঠিয়ে।

এ বিষয়ে বহু নিয়ম কাহুন করতে হবে। কেন্দ্রীয় আপিসে—বাংলার প্রধান প্রধান পাব্লিক লাইব্রেরী, কলেজ লাইব্রেরীর Catalogue থাকবে—তাঁরা সেখান থেকে নির্দেশও দিতে পারেন—বইখানি কোথায় পাওয়া যাবে। এজন্য inter-school, or inter school-college এই বিনিময়ের ব্যবস্থা শিক্ষা বিভাগ থেকে করতে পারেন। এইভাবে সমস্ত বাঙালির school library-র মধ্যে একটা যোগ স্থাপন হতে পারবে। এ বিষয়ে কলকাতা বিশ্ববিদ্যালয়ের সহায়তা আবরণ পেতে পারি; তাঁদের যে বিশাল লাইব্রেরী হয়েছে,—তার সঙ্গম হয়ে এই bibliography-র বিভাগ খোলা হ'তে পারে। এসব বিষয় শিক্ষা ডিপ্রেটর মহোদয়, মাননীয় ভাইসচ্যানসেলার, মহামান্য শিক্ষাসচিব মহাশয়ের সঙ্গে পরামর্শ করে স্থির করতে পারেন।

লাইব্রেরী সম্বন্ধে অনেক কথা বলবার আছে—যেমন classification method, issuing method ইত্যাদি। সে সব details-এর কথা আলোচনা করা এখানে সম্ভব হবে না। তবে একটা কথা বলা প্রয়োজন। সমস্ত লাইব্রেরীতে একটা অপালী অল্পসরণ করলে স্ব-বিধা অনেক। Inter school loan-এর স্ব-বিধা হবে—ছাত্ররা এক জায়গা থেকে অন্য জায়গায় গেলে লাইব্রেরীর মধ্যে বই বাহতে অস্ব-বিধা বোধ করবে না। তা ছাড়া Central Board-এর Classified list করবেন—তা সর্বত্র গ্রহণ করতে পারবেন। কেন্দ্রীয় বোর্ড বাংলা বই-এর

তালিকা card-এ ছাপিয়ে call number দিয়ে স্কুলে স্কুলে পাঠাতে পারেন। সামাজিক ধরচে একলি করা বাহু। সেই card index থেকে স্কুলগুলি বই কিনতে পারে, আবার প্রয়োজন হলে Central Board থেকে পড়ার অঙ্গ আনতে পারে। এ সমস্কে আরও অনেক কেজো কথা বলা যেতে পারতো, কিন্তু এ সভা তার অঙ্গ নয়।

Library সমস্কে বলা হলো। এখন librarianদের সমস্কে কিছু বলবার আছে। লাইব্রেরীয়ানদের training-এর প্রয়োজন আজ স্কুলকে স্বীকার করতে হবে। স্কুলে যেমন B.T বা training পাশ অধ্যাপকের প্রয়োজন অবশ্য—তেমনি অবশ্য হওয়া উচিত trained librarian। বই গুদামকে library বলি না; শিক্ষিত লাইব্রেরিয়ানের প্রয়োজন লাইব্রেরিগুলিতে বই-এর সদৃ ব্যবহারের অঙ্গ। University librarianship-এর অঙ্গ diploma ও degree-র ব্যবস্থা করতে পারেন। Matric পাশ করে ছ'বছর পড়ে উচ্চ প্রাইমারী স্কুলের শিক্ষকতা ও লাইব্রেরিয়ানের কাজ করবার যোগ্যতা হবে। I.A. পাশ করে ছ' বছর পড়ে B.A. উপাধি নিয়ে উচ্চ ইংরেজি স্কুলে শিক্ষকতা ও লাইব্রেরিয়ানের কাজ করবার অধিকার ও যোগ্যতা অর্জন করবেন। মোট কথা শিক্ষা বিভাগ ও বিশ্ববিদ্যালয় এ বিষয়ে একটা স্বীকৃত করতে পারেন।

আমাদের দেশের প্রধান ধারণা লাইব্রেরিয়ান সমস্কে বে তাদের প্রধান কাজ হচ্ছে বই issue করা। এ কাজ কেরাণীর কাজ বে কেউ করতে পারে—এমন কি trained bearer-রা এ কাজ অনায়াসে করে। কিন্তু স্কুল librarian হবেন ছাত্রদের lead and light। তিনি হবেন Encyclopedia—নিজে হবেন পড়ুয়া। এর মানে এ নয় যে তিনি সবজান্তা হবেন—তুনিয়াতে তা কেউ হতে পারে না—তবে তিনি হিস্স বাতলাতে পারবেন, এইটে হয় training-এর দ্বারা। পড়ুয়া না হলে কেউ ছেলেদের পড়ুয়া করতে পারে না; জ্ঞানের অঙ্গ পিপাসা না থাকলে, কেউ অপরকে জ্ঞানী করতে পারেন না। কল দিলে কল তৈরী হয়। জীবন্ত প্রাণ জীবন্ত প্রাণ গড়ে।

আমার বক্তব্য বিষয়ের অঙ্গে এসেছি। শিক্ষার উদ্দেশ্য কি তাই নিয়ে লাইব্রেরীর উদ্দেশ্য বিচার্য। শিক্ষার উদ্দেশ্য Social willকে জপদান—তেমনি তার অপর উদ্দেশ্য individualকে তার বিকাশের পূর্ণ সহায়তা ও স্বৰূপ দান।

Social will ব্যক্তি-স্বাতন্ত্র্যকে নিয়ন্ত্রিত করবে। আবার individual এর মনস্থিতা Social willকে পরিবর্তিত করবে। এই ছইএর যোগে বা সংঘাতে সমাজের অগতি। এই উদ্দেশ্য ধার্কলে আমরা চাইব না যে, ভবিষ্যৎ বংশধরগণ কেবল আমাদের repeat করে চলবে। আমাদের বক্তব্য তাদের যুগের জন্য তাদের তৈরী করে দেওয়া। সেই জন্য আমাদের ব্যক্তিগত ভালুকাগা, মন্দাকাগা, আমাদের মত অমত, আমাদের ধর্ম' অধর্মবোধ নিয়ে আমরা যেন খুব জেদ না করি,—অর্থাৎ সমস্ত liberal thought বা উদার নীতি ও মত—যেহেতু আমাদের মত ও বিশ্বাসের সঙ্গে তফাত—সেই হেতু সেগুলি আমরা লাইব্রেরী থেকে নির্বাসন দিয়ে ভবিষ্যৎ বংশধরদের অভিযন্ত উপকার করবার দুরাশা পোষণ না করি। এ বিষয়ে আমাদের একটু রসবোধ থাকা দরকার। কবির ভাষায় বলি 'ওরে যুট' তোর উপরে নয় তুবনের ভার—সুল বাড়ি ও স্থানীয় শহর ও গ্রাম ছাড়া বিপুল জগৎ বাইরে আছে—সেখানে the world of ideas'র মধ্যে ছাত্রকে বিচরণ করতে দেবার সাহস যেন আমাদের থাকে। আমরা যেন idea দেবার বেলায় কার্গণ্য না করি—পৃথিবীর মহাপুরুষদের সম্মুখে তাদের বসিয়ে দিতে যেন ভয় না পাই। আমি পুনরায় সেই কথা বলছি—আমাদের ভবিষ্যৎ বংশধরগণকে ভাবী কালের জন্য গড়তে হবে—আমাদের যুগের বা অতীত যুগের পুনরাবৃত্তির জন্য নয়। সেই জন্য তাদের মুক্তি দিতে হবে লাইব্রেরীর মধ্যে তথ্যের জগতে, তথ্বের নগরে। সেই মুক্ত বায়ু হ'তে তাদের যেন আমরা খুব উপকার করবার উৎসাহে তাদের আনন্দের, তাদের আবেগের, তাদের সমস্ত জৈব প্রাণের বিকাশের উৎস-মুখ বক্ষ না করি।

SCHOOL HYGIENE

BY COLONEL R. N. CHOPRA, C.I.E., K.H.P., M.D., M.R.C.P., I.M.S.

Introduction. The Hygiene of the growing age as a scientific study is more important from the national point of view than that of any other period. It is laying the foundation of the national health. In former times, the duty and scope of the public health service was to provide a sanitary environment of the people. "Housing, clean streets, water-supply, drainage and sewages, refuse removal, disinfection, quarantine, the isolation hospital, constituted the principal programme. Now the sphere of the public health service, though still to maintain a sanitary environment, is not the improvement of the externals of man's life alone but the improvement of man himself, the prolongation of his life, the strengthening of his physique, the gift of health, the enlargement of his capacity. Milton's 'betterment of man's estate' is giving way to the betterment of man".

It is a truism that a healthy childhood of sound physique is the only foundation on which national health and efficiency can be established. It is well to consider the meaning of the word *Health* as applied to the body as a whole. The word is not easily susceptible of exact definition, yet it is of the highest importance to have a clear mental picture of what is involved in the term. For the present purpose it may be said that a healthy child is one whose growth is proceeding normally, whose nutrition is normal and whose mind and body systems, nervous, cardio-vascular, digestive respiratory and so on, are functioning without impairment. Haldane's definition of health is probably better. This is a normal state which tends to maintain itself without any conscious effort to maintain it.

It is the aim of the School Hygiene to assess the child as a whole—his body and mind ; to understand the school child thoroughly, to help him to realise the best health and development of which he is capable.

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The examination of the child at this period should be undertaken because of his incapacity to express slight disturbances of health which he does not mind at the time, but which might have far reaching effect in his system or to find out any effect of malnutrition or disease which are not obviously manifest.

Habit formation and school. School-going age is the time of habit formation. The school provides the children with an excellent opportunity of forming healthy habits. Young child receptive and imitative in nature spends a large part of his day in school under the discipline of a teacher. His habits will be determined largely by his experience in school. Also the force of public opinion, which is important in habit formation is operative in the class room.

The objects of the school Hygiene programme may be outlined as follows :

(1) *Health protection.*

- (a) Examination. (i) physical, (ii) mental.
- (b) School sanitation.
- (c) Control of communicable diseases.
- (d) Hygienic arrangement of the school routine.

This includes :—

- (a) Planning of recesses.
- (b) Length of duration of classes.
- (c) The sequence of subjects.
- (d) The kinds of examinations given.
- (e) The amount of home work allowed.
- (f) The number of children per class.
- (g) The arrangement for tiffin etc.

(2) *Health Promotion.*

- (a) Health Education.
- (b) Physical Education.

(3) Correction of defects—as revealed in medical examination (After-care and Follow up work, School Clinics, Special Health Classes).

The first function of the Department of School Hygiene is Health protection. When laws are being passed demanding every child to attend school, then it is incumbent on us to see that the child's health is not injured by that procedure which the state requires. The community or State assumes

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responsibility with regard to the direct dangers to health due to school attendance. The first object is the ascertainment of the ailing child—provision of the means of treatment and the adaptation of the educational system to his mental and physical capacity.

Public School offers a menace to health from communicable diseases. In a public school, there occurs an aggregation of a number of children from different environmental conditions. Some of these may be carriers of disease. Also, the children are in a period most susceptible to disease. They have lost their congenital immunity and have not yet acquired natural immunity due to contact with disease. It has been often found that directly following the opening of public schools, epidemics have occurred among the school boys. Investigations by workers show that it is the new comers who usually go down with the ailment and the seasoned child escapes. Steps must be taken to prevent these communicable diseases by methods of immunisation of susceptibles, isolation and early treatment of the cases and carriers, proper seating and sleeping arrangements, adequate food and drinks, proper ventilation etc.

The foremost object in the School Hygiene Programme is Health Promotion. "The life of a man and the life of the nation depend primarily on good health which is not only freedom from disease, but the full working capacity of a people, that is, its sturdiness, alertness and vitality of the individuals constituting that people. It is the chief asset of a nation, even as disease is its chief liability."

Health does not come by chance. Though it is a birth-right yet due to the disturbing influences of modern living conditions on our life it is not acquired by heredity alone. It can only come by an educative nurture.

The whole child and adolescent population of all social classes and grades, need first the knowledge of Hygiene, and secondly the practice of Hygiene. There are three groups of persons who have special responsibilities in this fundamental question, the parent, the teacher and the child. On them depends the health standard of the new generation. On parents lie the responsibility of good heredity, nurture and guidance in the home. It places on the teacher and child a duty to bring hygiene into the art and way of life. The two elements should be taught together. The teaching of theory only will avail nothing ; the child must be trained in the habit of healthy living. "The study

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and practice of health must form, from the first, part of every day life of the school." Formation of healthy habits must precede the necessary explanation and the personal example of the teacher cannot be over-estimated.

Physical education.

Every one familiar with the history of physical education recognises the contribution it has made to the health of many nations since the days of the Greek Republic. Physical education provides play activities, and body building or strengthening activities contributing to physical health, mental health and social adjustment. The playing of games has value in general education apart from physical development and promotion of health. It develops skill and co-ordination, it contributes to worthy citizenship by developing the ability to get on with other individuals; it builds up sportsmanship and personality and it leads to the wise use of the leisure time.

I would remind you that the counterpart of an active mind is a healthy body. The value, both physical and moral of athletic sports cannot be over-estimated. They develop in the individual more, than anything else, the capacity of team work which is so important in these days in every vocation of life. Regular exercise in open air is most essential to brain workers to purify the blood of waste products ; it helps to keep the mind fresh, keen and active. My experience as a medical man and as a teacher has convinced me that those students who do not take part in sports and games often become mentally confused and are not so successful in life as those who take part in sports. Physical education provides well-organised activity programme for all school children and must not be concerned only with the development of an athletic team. By hygienic arrangement of school programme is meant that the routine of study will be alternated with work, rest and play.

Correction of defects.

Though taken last in order, its importance is by no means the least. Having recognised the needs of children through medical examination, it is obvious that we should do something to correct the defects that were observed. Any defect detected during a medical examination must be intimated, though the parents to the family physician on whom the onus of treatment should primarily rest.

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Much highly technical and scientific work has been carried out in assessing the normal or average development of the child both physical and mental. Many standards of fitness or efficiency, along with the tests to be performed, have been propounded.

Time, however, does not permit me to enter into the details of these. I would impress on the teachers of the young scholars in the schools that if they wish to do their duty towards their wards, they should carefully study the principles of School Hygiene and bring these into practical use in their schools.

—A Lecture delivered by Dr. A. N. Chatterji.

Mr. Chairman, Ladies and Gentlemen,

Colonel Chopra has just given you an outline of the school Health Programme. You will find that to give effect to this scheme the services of several specialists will be required. The personnel will include, school physicians, school nurses, physical educators, school dentists, nutritionists, psychologists, psychiatrists and health educators. I do not propose to enter here into a detailed consideration of the functions of these specialists or to describe the different types of work in which they are engaged. I shall restrict myself to the consideration of a few of the underlying principles related to class-room teaching and the role of the teacher in the scheme of school health education.

Health education differs from most school subjects in that it is primarily a training programme. It lays emphasis more on the building up of health habits and attitudes than on the acquirement of health knowledge. It includes mental and emotional health as well as physical health. It extends beyond the bounds of direct class-room instruction in hygiene and includes the correlation of health with other subjects of studies and the experiences of the pupil in his contact with the school health services and with the general instruction programme. Positive health is its dominant note, and the health educator should always keep in view the principles that underline health education. These are :—

1. *The child should think of health as a matter of conduct, and not as subject matter of instruction.*

A scheme which consists merely of a period of instruction in health matters will have but very slight effect on health habit formation. Health practice is more important than health knowledge and health habits can only be taught by healthful living.

2. *Training is necessary both to form habits as well as to maintain them.*

A systematic course of training is necessary both for forming health habits and for maintaining them. We cannot assume that habit once formed will be maintained uninterruptedly. We must not build a scheme upon the assumption

that we can successfully teach 10 good habits in class I, 10 more in class II, and eventually complete the list. It may indeed become more difficult to keep up health practices in the higher classes than it was to establish them in the lower ones. It will become necessary to repeat some of the elements of training over and over again, and for this reason fresh approaches and new materials will have to be provided for at each grade level. A series of new approaches will make repetitions possible without producing boredom and dislike on the part of the child.

3. *Health teaching should always be positive and not negative.* Emphasis should be placed upon what to do, and not upon what not to do. If we can get a child to do, what we want him to do, we need not worry a great deal about preventing him from doing what we do not want him to do. A bad habit is best eliminated by substituting a good one in its place.

4. *The responsibility for developing activities should be turned over to pupils in so far as is practicable.*

All teachers know that the way to get attention and co-operation is to place the responsibility on the pupil. The group discussion holds attention where the lecture does not, and the principle of pupil's responsibility is good pedagogy and sound method.

5. *Children should be commended for success.* Commendation for success is more effective than blame for failure. In starting a school health programme bring home to the children that this is something where everybody can succeed. It is something like the foot race in *Alice in Wonderland* in which the tortoise and other animals participated. "When do we start" they asked. "Anytime" was the answer. "How far do we run?" "As far as you like." "Who wins?" "Oh, we all win." Health training is something like that.

6. *Never hold the child responsible for the improvement of conditions over which he has no control.*

Thus when introducing tiffin, define it as any food which can be brought to school without soiling the clothes wrapped in a clean piece of cloth, or any food which is supplied at school. Then you can hold the child responsible for having some tiffin because it is within his power to procure one. Nothing is

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more disheartening than being blamed for something one was powerless to prevent.

7. *The teacher should help the child to realise that the ultimate reward of health practices will be found in improved growth, better physical performances, increased cheerfulness and other evidence of health.*

The winning of a specific reward at the end of a given period should never be held out as an inducement for participating in the health game. If that is in the child's mind then when the reward is gained there will no longer be any reason for his continuing the health practices.

8. *Interest in growth should be the best incentive towards the improvement of health practices.* Every child wants to grow, and pupils interested in growing will bring up the subject of health in various ways and will force the teacher to develop some sort of a health scheme.

9. *Pleasurable impressions should always be the result of the child's experiences of the health game.* The spirit of the survival of the fittest and the scorn of the strong for the weak are attitudes which should be directly discouraged. It should be pointed out that some persons who have done most for the world have been of limited physical health. Mrs. Browning, Robert Louis Stevenson, Charles Darwin and in our own land Iswar Chandra Vidyasagar, Mahatma Gandhi and many others never had strong constitutions. Surely we think more highly of these individuals and of their splendid contribution than of a perfect physical specimen of the human race who never did anything for anybody.

These are a few of fundamental principles which should guide us in building up the health programme of our schools. It is of the utmost importance that the programme should meet *local needs* and be within the *financial resources of the school*. Such a scheme can only be built up by the man on the spot i.e. the *school teacher himself*. The teacher will have to shoulder the burden of carrying the scheme to success and do the lions' portion of the work. He will have not only to co-ordinate the activities of the various special workers, to explain to the students the meaning of these procedures but will also have to interpret the school health programme to the parents and guardians. He will be required to participate in the health examinations of pupils, to assist in the control of communicable diseases, and to maintain

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hygienic and sanitary conditions in the school building. He will be called upon to weigh and measure pupils, to conduct the daily health review, to supervise the school tiffin, to arrange for relaxation classes, to supervise organised games, to develop special health training activities, to correlate health with other subjects, to teach the subject matter in health and hygiene, and lastly to furnish an example of health in himself.

From what I have said just now it will be evident that the health of the teacher is an important matter, not only for his own happiness, but also for its effect upon the quality of his teaching and his relationship to individual pupils. The school administration and the school board have a definite responsibility in the matter and steps should be taken to promote and maintain the health of the school teacher. This problem has many ramifications and I can only mention a few specific suggestions for constructing such a programme.

1. Furnish salaries to teachers sufficient for study, recreation, and an adequate standard of living.
2. Adopt a plan for tenure of office which will properly secure them in their position.
3. Provide adequate retirement allowances.
4. Make proper arrangements for the treatment of sick teachers.
5. Provide for thorough periodical health examinations for all teachers in service, and employ these periodic examinations for promoting the teacher's health and not as a means for disqualifying them.
6. Organise camps for teachers during the holidays to enable them to recoup their health and spirits.
7. Assign duties to teachers according to the training, fitness, and health conditions of the individual. This includes the safeguarding of teachers against an overload of teaching, committee obligations, chaperonage duties and other outside works. *Extra pay does not solve the problem of extra work.*
8. Provide for rest intervals during the day to prevent fatigue and irritability.

HEALTH IN SCHOOLS AND COLLEGES IN BENGAL

By DR. G. L. BATRA, M.B., C.H.B. (Edin.), & D.P.H.,

Assistant Director of Public Health.

I will deal first with the administrative side of the School Hygiene Work and what has been done by the Calcutta University and the Bengal Public Health Department.

The Calcutta University took up the medical examination of its students under the auspices of the Students' Welfare Committee about 16 years ago and has been printing very useful reports, year after year, but they have not drawn the amount of attention by the press and public as they deserve.

The 15th Annual Report of the Students' Welfare Committee for the year 1934 states that the Medical Board has examined 30,128 students during the last fifteen years. During the year 1934, 900 students from the following five colleges, viz :—Presidency, Bangabasi, City and Seal's Free College and 1,002 scholars of the Mitra Institution, Bhowanipur, were examined. The number of students found to be suffering from defects requiring treatment was 56% as compared with 62% for 1933 and 59.5% for 1932. The following table gives an analysis of the findings of medical inspection and shows the incidence of various defects.

Names of Diseases.	Figures for College students (given in percentage). No. of students—900.		Figures for School students (given in percentage). No. of students—1,002
	
Malnutrition	29·42		40·51
Defective vision	34·94		26·24
Enlarged Tonsils	27·93		40·51
Caries (dental)	11·49		18·96
Skin diseases	13·10		12·07
Lung diseases	7·12		1·19
Enlarged spleen	3·44		1·69
Heart diseases	1·95		2·49
Enlarged liver	1·03		4·39
Pyorrhoea	1·14		0·69
Tuberculosis	0·08		0·04

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2. Among school children there has been an increase in the number of students suffering from Malnutrition, Pyorrhœa, enlarged Tonsils, and Tuberculosis.

This increased incidence of Malnutrition and Tuberculosis is a disquieting feature and calls for immediate action. Dietetic adjustment, better atmosphere at home and the introduction of some system of compulsory tiffin in schools will help to reduce the extent of Malnutrition prevailing among school and college students.

The problem of Tuberculosis among the student population can only be tackled as a part of the general campaign against Tuberculosis by providing better facilities for sanatorium treatment and early detection. The University with its limited resources cannot be expected directly to undertake this task. It can, however, help in the early detection of this disease among the students. Medical examination should be made a condition of admission for registration as is done in some of the German Universities. It is desirable that the University should take some steps for enforcing this examination and make such changes in the Regulations as may be necessary for this purpose.

3. The number of defect cards issued by the After-care Officer was 1,100. 356 students were re-called for special examination; of these, 50 students suffering from malnutrition, diseases of the heart and suspected cases of chronic lesions of the lungs were kept under observation for various periods. The majority of these cases improved considerably under treatment and were subsequently referred to the Physical Organiser for proper instruction in physical education. In 11 of these cases, X-ray plates of the chest were taken to confirm clinical findings. In 9 cases, the X-ray plates showed definite lesions of the lungs. In 7 of these, the lesions were of such a nature as to necessitate suspension of studies for a time. Thus the incidence of definitely established cases of Tuberculosis is rather high; for it must be remembered that medical examination of students is still optional and a large number of students in the colleges keep away from the examination.

Over 300 students applied to the Secretary for special examination. This is a welcome feature and the Welfare Committee hopes that the students will make further use of the facilities offered to them. The majority of these cases suffered from defective vision. Apart from the facilities provided for

obtaining glasses at concession rates, and the supply of spectacles free of cost to needy students, arrangements have been made for conducting dark-room examinations of vision. The Eye Clinic has been located in the University premises and will work twice a week.

4. It will be interesting to note the work done in connection with the '*Health of Bombay Students*' during 1935 showing practically the same result as in the case of the Calcutta students, but nearly 14,000 students from Colleges were examined in Bombay; while in Calcutta only 900.

According to the statistics collected in the report, students were placed in three classes, A, B and C. Students with excellent physique and the pink of health were declared to have come under class A. Those under B were either of poor physique or underweight. This second class includes those who could be put right by proper physical training and dietary. C class students were those whose health and physique could not be improved owing to some inherent organic disease and which required prolonged treatment at the hands of a specialist or an operation.

The number of students examined during the year was 13,864 of which 6,571 were in Class A, 7,136 in Class B and 157 in Class C. In terms of percentage the figures were A class 47.4%, B class 51.4% and C class 1.2%. Among the colleges, according to the statistics in the report, the Karnatak College tops the list with 63.5 per cent. in A class and the Grant Medical College with 62% closely follows it. The Elphinstone, Sydenham College of Commerce and the St. Xavier Colleges in Bombay rank the 8th, 14th and 16th in the list of colleges coming under class A.

The report makes the following remark in the case of the Gujerat colleges. It says :—Most of the students of the colleges of the Gujerat group were very poor as regards their physique. The Gujerat colleges are very low in the list. Bhavnagar and Junagarh colleges stand last with only 20% and 30% of the students respectively belonging to class A. The number of those who needed glasses was 2,387. Fortunately, there were not many who suffered from either tonsils or nose defects.

The report concludes with the remark "what impresses one most is that 50% of the student population of this University is of class B." and adds

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"this state of affairs must be changed if the Indian nation is to make headway in this world under modern conditions, politically as well as socially."

4. *The Bengal Public Health Department* took up School Hygiene Work in 1920 by having a Special Officer, an Assistant Director of Public Health, with a lady doctor and 2 assistant doctors etc. Forms were introduced for School Medical Inspection and rules made for the construction of school buildings giving particular attention to the floor space and the window space. Standard heights and weights for each age period 4 to 19 were worked out by examining about 29,000 scholars in all parts of Bengal ; this special branch was being gradually retrenched till in 1932 it was altogether abolished and this work is being done since 1st April 1933 by two whole-time and 3 part-time medical officers working under the Director of Public Instruction and the Report of 1933-34 by Drs. Bose and Roy indicates that 4,534 boys were examined and the total number of defective boys found was 2,273 or 50 per cent.

Previous to the report of 1933-34, the work done under 'School Hygiene' may be seen from the Annual Public Health Reports of the Director of Public Health, Bengal, but unfortunately in consolidating no attention was paid to classify the results of examination of scholars regarding Calcutta, urban municipalities or rural areas, and all these have different environments—both social and hygienic ; so one is debarred from drawing any useful inferences though for 1934 I have shown the details of results separately for Calcutta, the mafassal municipalities and rural areas. In the attached statement prepared from the Director of Public Health's Annual Reports for the years 1927 to 1934, it will be noticed that the number of students examined increased from 11,746 in 1927 to over 21,000 in 1933 in 161 to 202 schools by 41 Medical Inspectors. The total number of defectives found with one or more defects varied from 42.3 per cent. in 1928 to 67 per cent. in 1931. III-nourished boys varied from 19 per cent. to 39 per cent., but in Calcutta only 12.2 per cent. were found while in the municipalities and rural areas 23.8 and 31.3 per cent. respectively. The percentage of students without shoes was 87.4 in rural areas, 53.8 in municipalities and only 9 in Calcutta ; the proportion runs similar regarding the 'poorly clad' : 29.4 per cent. in rural areas, 14.3 in municipalities (other than Calcutta) and only 1.1 in Calcutta. The number of students with defective teeth varies from 11 per cent. to 13 per cent. without

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much difference in Calcutta, the other towns and rural areas, but in case of defective vision Calcutta heads the list, viz :—1·9 per cent. only in rural areas, 6·9 in municipal towns and 27·9 in Calcutta ; similarly, regarding enlargement of tonsils the percentage is the highest in Calcutta, viz : 23·3 while in the urban and rural areas only 3·3. Skin diseases are noticed : 2 per cent. in Calcutta, 7·03 in municipal towns and 12·1 in the rural areas ; enlarged spleens—6 per cent. in Calcutta and 6 per cent. in municipal towns and rural areas ; the percentage of infectious diseases varies from 2·2 in rural areas to 3·5 in Calcutta ; similarly, of unvaccinated children ; —·03 in Calcutta to 3·9 in municipal towns and rural areas.

The attached statement *B* shows the weight in boys aged 10 to 15 much below the anthropometric standard weight and worse in 1934 due to unsatisfactory economic conditions, I believe.

The statement *C* (also appended) shows the work done by the Sanitary Inspectors in the thana rural health circles—which is undeveloped, but the quality will improve in future as already the quantity has increased from 62,000 in 1933 to 147,599 in 1934.

The attached statement *D* shows the defects found, in detail, of 4,524 boys examined during 1933 in Calcutta schools by two whole-time and three part-time School Medical Officers. Fifty per cent. of boys had one or more defects, 30 per cent. had their eye-sight defective (13 per cent. can't see figures on the board) ; the percentage of other defects noticed are : 10 per cent. carious teeth, 27 enlarged tonsils, 22 with digestive troubles, 35 per cent. suffering from malnutrition which is apparent from 87 per cent. of the boys going without any tiffin in schools—which has a very serious effect on the growing child and often it leaves a permanent defect throughout life. The percentage of the defectives is on the increase—specially in case of eyes, teeth, posture and general nutrition.

You will notice from the figures given above that "Malnutrition" plays a most important part in the case of our students and specially 'weight' is affected very much between the ages of 7 and 14—the most important period in a boy's life for building up his body and mind and both should be built up on a healthy foundation simultaneously if it is desired to have a healthy nation and this object can be attained by having—(a) regular medical inspection com-

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bined with curative treatment and (b) substantial tiffin supplied in the interval period during school hours. I would suggest for these to be carried out by charging each pupil annas -/4/- per month for tiffin and anna -/1/- per month for an annual complete medical examination and free treatment limited for eyes, ear, nose, throat, scabies and other minor ailments of teeth and skin as proposed by me in a scheme submitted first in 1912 to Mr. Godley, the then Director of Public Instruction, Punjab, and adopted there with success. The -/4/- as. per month experiment for tiffin was suggested by me 8 years ago and has been tried with great success in the Hamilton High School, Tamluk (district Midnapur), for nearly two years ; this tiffin system can be utilized to instill the ideas of social service, mutual help, dignity of labour, co-operation and co-ordination among the rising generation and this experiment can only succeed if no servants except cooking are employed and the whole service is done by the boys in turns. The tiffin consists of wheat-leaven bread (roti), dal or vegetable and sometimes fried rice and cocoa-nut.

One anna per month experiment for medical inspection has been tried in Punjab by keeping annas -/4/- for medical examination for each boy per year and annas -/8/- for treatment per boy per year ; from these funds medicines can be bought and also free eye-glasses can be bought and a medical man paid for attending and treating minor ailments thrice a week for two hours daily. The same thing can be easily done in places where medically qualified persons are available, but in villages also it is possible to follow the same procedure if an itinerary doctor is employed by a group of villages helped by a supplementary grant from the district board.

"School Medical Inspection" was made compulsory in England by an Act of the Parliament in 1909 when I was getting my training for Public Health in London. On reaching Lahore in 1910, I examined 500 students in the Colleges and schools there without any remuneration. The results of my examinations were published in the local Press and appreciated by Mr. Godley, the then Director of Public Instruction, Punjab, who asked me to prepare a scheme for the Medical Inspection of School Children. Similarly, I examined 200 boys of Shantiniketan, Bolpur, (Birbhum) during the X'mas holidays of 1919—my first year in Bengal—and published the results in detail.

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The greatest need of the hour is a healthy co-operation between the teachers, guardians, pupils and medical attendants. As all desire for a healthy nation, every one should take a healthy interest in the health of the growing generation.

The next question, I wish to point out, is the kind of *food* which is best for the scholars. The best is the Punjabi diet as approved by experiments made at the Coonoor Nutrition Institute by Sir Robert McCarrison, I.M.S. and also by his successor Dr. Avkroid; details can be had from the January, 1936, issue of the Indian Journal of Medical Research.

“Food”. Sufficient food is not available for our children and it is impossible to learn anything on empty stomachs and all your other deliberations in this conference will be useless if this question of fooding the scholars efficiently is not solved successfully. England is trying to pass an Act of the Parliament the aim of which will be to have enough milk in the country so that each adult gets one pint or a little over half seer and children below twelve two pints a day per head. Milk used to be only 2 pice a seer in Bengal and even to-day in East Bengal there is sufficient milk which is a perfect food containing all the vitamins and vital elements in a nicely balanced proportion, viz—proteins, carbo-hydrates, fats and minerals. The milk supply can be increased by having co-operative dairies.

In most of the English Schools tiffin is supplied to boys. The other main article of food is ‘Rice’ about which I used to say whenever I heard the early morning whistle of signal-call for workers in a rice mill “There goes the death-knell for Bengal” and in ten years it has turned out to be true. The poet Rabindra Nath Tagore wrote in an article entitled “Self-imposed Impoverishment” in the issue of the 11th January 1936, of the ‘Harijan’, a weekly paper printed in Poona (available for Rs. 4 annual subscription) and dedicated to ‘Village Reconstruction’ :

“When a people’s diet takes a vicious path of its own impoverishment it causes a graver mischief than any act of cruelty inflicted by an alien power. Such has unfortunately been the case in our province. Rice has been our staple food from which we have for generations received a part of our health, strength, energy and intelligence. But curiously enough, especially among the upper class of our community, a fatal epidemic of foolishness has become pre-

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valent which allows this principal food-stuff of ours to be depleted of its precious nourishing element. Rice mills are menacingly spreading fast extending through the province an unholy alliance with malaria and other flag-bearers of death robbing the whole people of its vitality through a constant weakening of its nourishment. We not only boil away an essential amount of nutrition from our daily ration of rice but also use elaborate machinery to polish off its skin which contains its most vital gift. This is a self-imposed form of famine deliberately welcomed by a people who had already been suffering from the scarcity of milk and that of ghee of a non-poisonous kind. One of the consequent diseases in the form of beri-beri has specially chosen its victims from the Bengalis who still remain indifferent to its lesson.

There had been, I am told, some proposal to check the progress of this fatal evil through the intervention of legislature. I am glad that it failed, for the people must not be treated like eternal babies carefully protected by its appointed nurses from its own utter silliness. It is only ourselves who should exercise our intelligence in choosing our food which must be wholesome and sustaining. It is for the people themselves to realize that in the long run it is not cheaper to substitute the callous force of machinery for the indigenous rice-huller, oil-press and grind-mill for crushing the wheat. Physical vigour born of healthy meals is valuable, not only for itself but for its power of enhancing one's earning capacity. Then again, we have to take into account the immense importance of our rural economic life whose course has been cruelly obstructed by the iron monster robbing our village women of some of their natural means of livelihood and the labouring class of its right to gather its simple living out of the gleanings from the people's own green field of life. It has gone on for long—this tampering with the time-honoured irrigation of living—in this country causing large desert tracks of privation in our villages. Would it be too much to expect a body of volunteers in Bengal to form a league whose members should take a solemn vow to use dhenki-hulled rice for their meals not allowing its nourishment to be stupidly thrown away by wasteful cooking? Could they not realize that it is perpetuation of a national calamity to which most of us are daily helping by instituting in our homes an insidious method of suicide?" (Santiniketan, December 28, 1935.)

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The other food supply is mustard oil ; here also use home-pressed one. I have placed simple instructions regarding 'Nutrition' in the 'Howrah Municipal Health Book' on pages 30—33 and I have brought 200 copies for distribution and more can be had by applying to the Bengal Public Health Department. The address of the book on "Balanced Diet" by Dr. Tilak of Bombay (available for four annas only) is given in the above mentioned 'Health Book' and it is a very useful book as it shows you the way to have sufficient and nourishing diet for Rupee Five or Six per month.

"Health Education" and "Health Habits" should be taken up seriously as advocated by Professor Turner of Boston (U.S.A.) in his lecture in the Calcutta University delivered in December 1935 and his books 'Malden Series' published by Heath & Co., are very useful and should be placed in every school library.

Self-help, self-control and self-sacrifice should be taught to our young scholars who should practise them in their daily lives and they should also be made to practise self-analysis of their daily actions by writing detailed and critical daily diaries every night and taking stock of their progression and regression weekly, monthly and yearly. (Copies of diaries devised for my sons in 1912 and 1921 are attached as an appendix 5).

The final matter, I would like to urge upon you is to teach the boys how to perform "Productive Exercises" in a poor country like ours by setting examples yourselves, viz.—by cultivating the habit of taking up some manual work as a hobby like doing your own house-hold work of cooking, washing dishes, scrubbing floors, cleaning up your rooms, whitewashing them, gardening, growing vegetables, cleaning up village streets, nursing the sick, helping the poor farmers during harvesting and cultivating fields, spinning, weaving etc. These examples, if carried out, will teach our boys and girls the "*Dignity of Manual Labour*", rich and poor alike, and will be very fruitful from the sociological point of view. Gymnastics, drills rowing and other expensive games are "*Non-Productive*" though useful in their own places, but in our present economic condition we can't afford the luxury of teaching our growing generation the '*Non-productive exercises*'; these should be left for the richer countries. Let us not be discouraged by difficulties, but let us begin in right earnest being not afraid of the "*Results*". Let us be "*Karma-Yogis*" leaving the results in the hands of the Higher Power.

The following two verses should be as inspiring to you as they have been to me :—

"Let no man think that sudden in a minute
All is accomplished and the work is done
Though with thine earliest dawn thou should begin it
Scarce were it ended in thy setting sun."
"I slept and dreamt life was beauty
I woke up and found life was duty."

STATEMENT "A" OF SCHOOL MEDICAL

Defects found are given in percentages of total

Year.	No. of medical inspec-tors.	No. of boys examined.	No. of girls examined.	No. of Schools inspec-ted. B=Boys; G=Girls.	Ill-nourished.	Without shoes.	Poorly clad.	Defective teeth. (Cavious).	Eyes requiring glasses.	Ear trouble (mostly Otorrhoea).	Nasal catarrh (mostly Rhinitis).	Adenoids.	Enlarged tonsils.	Skin diseases.	Cervical or sub-maxillary glands en-larged.	Bony deformities and Paralysis.	Defective speech (mostly stammering).	Organic disease of the heart.	Enlarged spleen.	
1	2	3	4	5	6	7	8	8 (a)	9	10	11	12	13	14	15	16	17	18	19	
1927	...	11,746	...	196	39·1	69·62	45·5	16	6·2	2·2	5·1	2·9	11·6	2·7	7	9	5	6	8	
1928	...	18,750	...	176	24·7	45·3	30·0	9·4	10·1	1·6	2·02	1·1	10·4	2·1	4·3	2·2	6	5	2·4	
1929	...	18,488	434	{ 179-B 13-G }	25	31	26	10·7	1·9	1	1·8	4	12	5	3·8	4·4	6	5	4	
1930	...	16,700	524	159	24	33	24	13·3	14·7	1·4	1·1	3	11·5	5·5	4·5	0·02	7	5	4·9	
1931	...	21,085	817	{ 195-B 7-G }	23·8	34	23·4	11·1	13·2	1·9	2	2	11	6	6	0·02	1·7	0·75	4·3	
1932	40	20,322	1,024	189	26	27·4	21·1	8·7	12·9	1·2	2·2	1·7	1·4	5·6	16·7	...	7	...	...
1933	41	21,140	550	183	22·6	36·87	17·3	6·3	16	·95	2·9	1·7	7	3·9 Pal-pably ·83 De-finitely	...	3·4	...	·81	...	
1934	41	17,283	319	161	19	31·2	12·8	11·8	15·8	1·3	2·6	1·9	10·6	665	5·7	...	·67	...	...
1934	...	...	Actual figures	...	3·319	5·486	2·254	2,073	2,794	237	459	350	1,864	201	1,003	...	129	...	...
Calcutta Government and aided Schools.					8	5,160	...	30	12·2	·9	1·1	11·0	27·9	·7	1·1	3·04	23·3	·2	2·0	·6
Municipalities.					23	5,887	...	53	23·8	53·8	14·3	10·3	6·9	1·3	3·9	1·01	3·1	5·1	7·03	·6
Rural areas.					3	1,590	...	68	31·3	87·4	29·2	13·4	1·9	4·1	2·9	·6	3·3	4·9	12·1	1·1

DIX I

INSTITUTE—(1927 TO 1934).

No. of scholars examined each year.										Buildings: (accommodation).						Total defect percentage.		Remarks.			
Rickets.	Unvaccinated.	Suffering from infectious diseases.	Malaria.	Whooping cough.	Dysentery.	Leprosy.	Measles.	Diphtheria.	Smallpox.	Tuberculosis.	Bengal Public Health Department.	Insufficient floor space.	Insufficiently lighted.	Improperly ventilated.	Without latrines and urinals.	Having no play-ground.	Plans approved.	38	39	40	
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
·52	9	10·5	6·02	·4	1·2	·01	1·6	·07	·4	·1	·1	131	107	62	48	103	113				42·3% of children defective required immediate notification to their parents or guardians.
·3	4·4	2·3	3·4	·2	1·2	...	·7	·08	·2	·2	·1·6	132	62	59	8	13	12				
·6	4	3·1	3·6	·4	1·4	...	·9	·04	·2	·1	·1	106	50	33	7	66	62				
·2	3·2	...	5·8	·4	1·7	...	1·4	·1	·4	·3	1·6	76	49	36	11	59	60				
·02	3·5	10	2	·08	·5	·08	·01	·4	·09	·1	1·5	42	35	22	24	12	17				53% required immediate notification to their parents or guardians.
...	2·2	4·5	...	...	...	...	...	...	...	...	1·4	33	...	...	...	...	...
...	1·5	2	...	...	...	...	...	...	...	...	1·44	12	...	...	...	...	...				67% Do.
...	2·1	2·2	...	...	...	...	...	...	...	...	1·0	34	18	9	...	7	7				67·10=percentage of defectives.
...	372	395	...	...	...	...	...	...	...	...	2·89										59·2=Do.
...	·03	3·5	...	...	...	...	...	...	...	...	3·04										48·73=Do.
...	3·9	2·1	...	...	...	...	...	...	...	...	·5										60·57=Do.
...	3·5	2·3	...	...	...	...	...	...	...	...	2·3										

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

APPENDIX II

STATEMENT "B" SHOWING AVERAGE WEIGHTS AT DIFFERENT AGES FOR THE YEARS 1931 TO 1934

Years	Ages.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total Over all ages.
	Anthro- pometric standard weight in lbs. Height (inches).	39	42	46	52	55	62	68	76	87	96	100	103.8	108	121	127	
1931.	Average weight of Bengali stu- dents in lbs. No. of boys examined.	41.6	44.4	46.6	50	52	53	54	55	57.6	60	61	62	63	65	66	
	Average weight of the students examined in lbs. No. of boys examined.	6	5	5	6	1	7	9	10	11	11	10					
1932.		33	47	41	46	54	55	59	66	76	85	90	99	104	106	110	120
		340	801	1,145	1,581	1,805	1,999	2,220	2,197	1,867	1,902	1,530	1,158	643	413	114	75
1933.		5	4	5	6	3	7	8	10	9	10	9					
		34	38	41	46	52	55	60	66	79	86	91	98	104	106	110	
1934.		398	671	983	1,297	1,880	1,972	2,075	2,166	2,053	1,887	1,753	1,293	854	586	277	147
	Average weight of the students examined in lbs. No. of boys examined.	2	3	1	4.8	3	5	7	8	10	10	7					
		37	39.2	45	47.4	52	57.2	61	68	68.5	85.7	93.3	94	107.3	109	113.2	
		588	986	1,306	1,587	1,801	1,906	1,986	2,320	2,165	1,923	1,746	1,448	797	588	420	97
	Average weight of the students examined in lbs. No. of boys examined.	2.8	5	4	5	5.4	8		10	10	15	15	11	13.8			
		36.4	37.1	42.3	47.1	49.6	54	58	66	72.3	81	89	90	102.5	104	115	
		237	696	1,069	1,311	1,510	1,762	1,799	1,867	1,761	1,760	1,531	1,138	594	353	114	60

APPENDIX III

STATEMENT "C" SHOWING AVERAGE WEIGHTS AT DIFFERENT AGES FOR THE YEARS 1931 TO 1934

Year:	Number of schools examined.	Number of pupils examined.	Found unvaccinated.	Found with enlarged spleens.	Found infested with vermin.	Number of lantern lectures delivered to the students.	Remarks.
1931	2,389	61,996	5,832, i.e., 8·5%	15,365, i.e., 24%	674, i.e., .9%		
1932	2,730	86,310	4,072, i.e., 5%	7,022, i.e., 80%	800, i.e., 1%	384	
1933	4,468	109,693	9,525, i.e., 8·5%	12,410, i.e., 14%	4,273, i.e., 4%	634	
1934	4,865	147,599		(Not available.)			

APPENDIX IV

STATEMENT "D" SHOWING THE TOTAL NUMBER OF DEFECTS AND DEFECTIVE BOYS FOUND DURING 1933-34.

Total No. of boys examined	...	...	4,534
Total defective boys	...	...	2,273, i.e., about 50%
1. Defects of Eye—	...	...
(a) Eye-sight—			
Total	...	...	1,305, i.e., about 30%
Very bad cases and notified		...	787
Moderate defects	...	...	205 Kept under ob-
Slight defects	...	...	servation

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

APPENDIX IV—(Contd.)

(b) Squint	...	...	...	15
(c) Other diseases of eye	...	...	...	35

2. Defects of Teeth—

(a) Carious teeth—

Total cases	...	...	...	433, i.e., about 10%
Permanent teeth	...	...	...	105
Temporary teeth	328

(b) Other diseases of teeth and gum including Pyorrhoea	124.
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3. Diseases of Throat—

(a) Enlarged tonsils—Total	1,280, i.e., about 27%
Slightly enlarged	786
Greatly enlarged and requiring treatment	...	...	...	255
(b) Adenoids	...	...	...	295, i.e., 6%

4. Glands in Neck **45**

5. Diseases of Ear—

Total	...	...	...	27
(a) Otorrhoea	...	...	...	17
(b) Deafness	...	...	...	2
(c) Other diseases of ear	...	...	...	8

6. Diseases of the digestive system—

Total	...	...	...	1,012, i.e., about 22%
(a) Acidity	...	...	...	105
(b) Constipation	...	...	...	503
(c) Diarrhoea	...	...	...	215
(d) Dysentery	...	...	...	124
(e) Dyspepsia	...	...	...	50
(f) Enlargement of liver	...	...	...	15

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

APPENDIX IV—(Contd.)

7.	Diseases of the heart—				
(a)	Functional	...	...	...	40
(b)	Organic	...	...	...	2
8.	Diseases of the Respiratory System—				
(a)	Chronic bronchitis	...	...	...	54
(b)	Asthma	...	...	...	18
(c)	Tuberculosis (suspected)	...	...	...	95
(d)	Tuberculosis (definite)	...	...	...	3
9.	Diseases of the nervous system—				
(a)	Definite	...	...	...	None.
(b)	Partial paralysis	...	...	...	2
(c)	Emotional children	...	...	...	25
(d)	Defective speech	...	...	...	9
10.	Skin diseases—				
	Scabies, ringworm and other diseases	...	...	...	25
11.	Infectious diseases—				
	(None found in acute state during inspection work in schools.)				
(a)	Leprosy (suspected)	...	...	...	3
(b)	Tuberculosis (do.)	...	...	...	95
(c)	Do. (definite)	...	...	...	3
(d)	Small-pox	...	...	...	0
(e)	Whooping cough	...	...	...	30
(f)	Diphtheria	...	...	...	0
(g)	Dysentery	...	...	...	124
(h)	Malaria	...	...	...	65
12.	Deformity of body—				
(a)	Bone	...	...	...	5
(b)	Muscular paralysis	...	...	...	2
13.	Mentally Defective	...	...	...	None.
14.	Emotional children	...	...	...	25

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

APPENDIX IV—(Contd.)

15. *Malnutrition*

Total 1,585, i.e., about 35%

16. Physical fitness for exercise—

Unfit 5, i.e., 0·11%

17. Moderately fit 14, i.e., 0·3%

18. Boys not taking any exercises at home at all 90%

Tiffin—

(a) Boys taking tiffin from hawkers About 10%

(b) Boys getting tiffin from home Do. 3%

(c) Boys not taking tiffin at all , 87%

APPENDIX V

N. B.—(To be recorded conscientiously every evening and honest replies recorded in detail and concrete terms giving actual hours and exact time spent against each heading. Make a short report weekly, monthly and yearly in figures to realize positive and negative progress made and help in self-analysis.)

Diary of

day. Dated

19

Names of subjects.	With Teacher School, College or Office.		Home Work.		Remarks.
	Quantity of work. Name the book and its pages.	Time put in.	Quantity of work. Name the book and its pages.	Time put in.	
1	2	3	4	5	6
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

APPENDIX V—(Contd.)

	State actual time taken:		State ac- tual time taken:
11. Bath (hot or cold?) Tooth brush?		23. Conduct towards— a. Friends b. Relations c. Teachers d. Parents e. Servants f. Animals	
12. Prayers— Oral ... Bhagwat Geeta or— Morning Evening		24. Any punishment received in school, office or at home?	
13. Physical Exercise— Name what kind and how long? Morning Evening Dumb bells—Tennis— Football—Hockey or		25. Name subject of lecture or meeting attended?	
14. Indoor games (name) Hours of meals— Name article and quan- tity taken at each meal Breakfast Lunch Tea Supper		26. Club, cinema, theatre or (Name subjects.)	
15. Friends or relations seen or visited—name and time		27. Total hours of work at (a) home, (b) School or College or office	
16. Letters written— How many? and to whom?		28. Hours of sleep? Give exact time	
17. Name any good deed done in the day for people or country		29. Hours of play?	
18. Any mischief or wicked thing done in the day or Night?		30. Time wanted?	
19. Any quarrel picked up in school or home with re- sult and whose fault?		31. Interest taken or struck with any special subject. Discussion with teacher, guardian, relatives, boys or parents regarding matters social, moral, intellectual, political or sexual.	
20. Conditions of Physical Health?		32. Any hobby taken up, for example, Photography, gar- dening etc.?	
21. Constipation?		33. Have you told any lies? If yes, why?	
22. Any bodily suffering?		34. Have you been truthful and honest in observing Duty (Dharma) towards: (a) yourself, (b) parents, (c) friends, (d) poor people and (e) your motherland (Bharatvarsha)?	

Signature..... Signature of Guardian or Teacher.....

SCHOOL PUPILS' HEALTH

BY RAMES CHANDRA RAY, L.M.S.

INTRODUCTORY.

The holding of the first Bengal Education Week from 31st January to 8th February 1936, has been the means of focussing public attention on educational matters, and, of affording to those directly interested in the subject, opportunities for intensive study of several aspects of modern education. As the first attempt of its kind in Bengal, it has undoubtedly been organized on a rather short notice. Teachers have been drafted from their humdrum and almost drab spheres of work into a plethora of bewildering variety of topics. I am not sanguine therefore if this surfeit will not produce mental dyspepsia and bewilderment. I had heart to heart talks with many delegate-teachers and head masters who could not tell me, under a particular head, the most telling thing that they saw, nor the most prominent fact they learnt, nor even the most important principle that gleaned. Some of them freely confessed to have been gorged over much and hurriedly too, with a perplexing variety of rich things. I know that I am consciously adding to their fill. But I am going to address them on a theme that concerns everybody the most—viz., on their Health.

NECESSITY FOR CARE.

To understand why it is necessary to take care of the health of children, it is well to recall to mind and vividly realize beforehand, the significance of Herbert Spencer's words. "The first aim" says Spencer, "in the training of a child should be, to make him a good *animal* (i.e., having a sound body). Good Health means righteousness. Sickness is *immorality*, because, Health is an ethical obligation." In western countries, they have Nursery Schools, in open air, where children of both sexes, between two-and-a-half to six years of age are initiated into the mysteries of nature, through the use of the senses.

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We have no such institutions here. Here children begin attendance at schools at any age between six and sixteen. The necessity for health examination becomes all the more important in this country where barely six persons are literate out of a hundred, where customs, prejudices and ignorance stalk rampant and where the only notion that people have of health is, the one of freedom from crippling diseases !

It is also necessary, as a matter of policy, to examine the health of school pupils, because, from the point of view of—

- (a) *Society*,—such examinations afford materials for study of economic condition of pupils and their guardians and the effects of such conditions reflected in the person and mental health of the students. Such materials can ultimately lead to devising of means that will no longer let the pupils be a burden on society but will transform them into potential soldiers of the country and powers for its uplift.
- (b) *Schools*,—such examinations will enable guardians and school managers to find out the fitness of each pupil for the particular kind of school, the special grade of it and the particular branch of education to which a scholar is most suited by reason of his health, his mental calibre, social status and needs. The absence of this discriminatory examination at the start of one's career, is responsible for the present arrangement of putting round pegs into square holes.
- (c) *Family*,—such examinations will be a helpful guide as to the kind and extent of nurture necessary to properly bring up the child.
- (d) *The Individual* himself or herself,—it will help him or her in health protection and health promotion, so that he may thereby avail himself, to the full, all opportunities for self-unfoldment and self-expression—mentally, morally and physically—and also adjust himself or herself gradually to his modern progressive surroundings.

School health examination, therefore, ought at all times to be a State concern. Of all countries in this world, Germany realized it and made tremendous efforts in this direction several years before the last Great War (1914—18).

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In this country, it should be begun at the Primary School stage (from sixth year upwards) ; or, at any age at which a student is admitted into a secondary school.

Health examination shall be a *systematic* work and should be *efficiently, thoroughly and regularly* conducted. Results of examinations must be legibly entered on a printed stiff-card, at least once every year; and every three months or oftener, in respect of defects noted. This examination is to be started as soon as a pupil is admitted and should be continued till educational career is finished. Every institution through which the student passes, shall record on its own special books, all previous records entered on the card and add its own findings to those previously recorded on the same. At the end of a pupil's educational career, his card shall be deposited in the office of either the Director of Public Instruction or of the Registrar, Calcutta University. At the end of each year, the final depositing authority will publish a statistical study of the year's deposit and make suitable suggestions and recommendations.

WHO TO EXAMINE.

A Medical Board (statutory) should be created—the Director of Public Instruction meantime calling together a temporary Board—(a) to draw up the necessary Form, Procedure and Instruction ; (b) to supply the necessary equipments to the examiners ; (c) to divide each district into medical examination centres or circles ; (d) to approve of, or supply, qualified practitioners who are to conduct examination ; and (e) to co-ordinate and generally supervise the work of school health examiners. At present, Government Assistant Surgeons and Hospital Assistants may be requested to start preliminary work, or local private practitioners (including women practitioners) may be asked to do so, for which an honorarium may be paid. The state should ultimately inaugurate, a *School Medical Service* (with women practitioners in plenty) for carrying on this kind of work in future. All Colleges for training teachers (men as well as women) should undertake thorough training of teachers who may be able to carry on routine examination of—

- (a) Height, weight, chest girth and chest expansion in French measures (kilogramme, metres &c.)
- (b) Conditions of teeth, scalp, skin, eye sight (distant and near visions); tuning fork test of hearing ; recognition of colours.

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- (c) Counting of pulse and respiration at rest and after stated amount of exertions.
- (d) Cleanliness of person, dress and specially of cleanliness of mouth, nails, head and hair.
- (s) I. Q. (intelligence quotient) tests of Binnet.

Every teacher should be trained in child Psychology. Every teacher should be very thoroughly impressed with the facts that every part of a child is growing ; and that his unfolding delicate nervous system requires intelligent, correct and sympathetic guidance. A teacher should be more particular in protecting the child from the evil effects of environment and fatigue from over-pressure, and in giving him *correct guidance* and *friendly help*, rather than in trying to ram down his throat, a quantity of ready-made knowledge. Each teacher should be alert to detect the earliest signs of *fatigue*. To expect all this and many things more, we require intelligent women teachers in the lower forms ; and well-paid, contended teachers too—not indolent, lifeless, over worked mechanical automatons. This means money, where is this to come from? Oriental Society and Kings in India used to make it a point to make teachers care-free ; and teachers made it a point to take the vow of eternal poverty and a life of plain living with high thinking. Let the occident with its will-o'-the-wisp of "higher standard of living" cogitate its brain to find the wherewithal.

SCOPE OF THE EXAMINATION.

The Examination of each pupil should show, on different sides of the same card, (a) What has gone to make him and (b) What he or she is.

(A) *The Child's make up.*—Record of these facts should be made by trained School Medical Officer, in collaboration with parents or legal guardian. The informations to be noted are :—

1. Age sex, present address (village, post office, thana district). religion and sect, caste.
2. Name and occupation of father. If dead, what diseases did each parent die of, and at what age.
3. Average annual income in Rupees of supporting parents or guardian [Assurance should be given by law to protect parents

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against this statement being used in taxing and assessments and for purposes of similar "harassment."]

4. Number of brothers and sisters living ; and the age and diseases at time of death of each, for those not living now.
5. Enumeration, in chronological order, of the different subdivisions and districts in which the pupil has lived, with ages at each place ; approximate period of stay in each ; and diseases suffered from, at each place.
6. As far as possible, accurate statement of ages of commencement of—(a) viva voce learning, (b) first use of vernacular primers, (c) initiation into the English alphabet.
7. Vaccinated or not. If yes, how often and where and at what ages or in what years. Was any inoculation pronounced "successful" by any qualified practitioner.
8. A chronological statement of all diseases and accidents suffered from, age by age.
9. Did he have to earn to maintain himself? If so, from what age to what age? Was he ever a "charity boy" or scholar? If so, at what age periods and from what sources.
10. What are and what were, his hobbies, plays and amusements. Does he pursue them yet? If not, why not?
11. A statement of his diet in general terms—giving qualities and quantities in lbs. and ounces, as far as practicable. State particularly which of these are used habitually and which occasionally :—milk, meat, eggs, fish; fruits; butter or ghee, loochi, chapatee; sweetmeats. State quantity of each taken in 24 hours (approximately).
12. Give a short note of academic career in all previous institutions (school by school and class by class). State particularly—
 - (a) If he had private tutors; if so, in what classes and in what subjects;
 - (b) If he had to do regular domestic work in addition to studies; and
 - (c) If frequent chastisements were called for; if so, for moral or mental defects?

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(B) *What are found on Examination.*—These should be entered in minute details. The Examination must be very thorough, including, in special cases, examination by instruments of precision like X-ray, microscope examination of blood or sputum. [I may here note in passing that the best time to diagnose and treat an infective, but supposedly "healthy," phthisis patient is, when he has practically no symptoms and when skiagraphy and skiascopy alone can save him and those around him. In European countries, students and army and police recruits are regularly so examined, with the result that, two out of every thousand persons examined, turn out to be infective! Who knows what is the matter with us and if such mass X-ray examinations are at all going to be introduced? It is decidedly cheaper in the long run to have them.]

REMEDIES.

The object of every health examination is to enable parents and guardians to know the defects and remedy them in the interests of the pupil's health and efficiency and in the greater interests of the school authorities and ultimately of the society. But many guardians are poor and most are indolent and refuse to stir. It is necessary, therefore, while introducing School Health examination, to *enact laws* that will compel guardians and provide for institutions and agencies that can supplement or if necessary supplant the guardians' efforts where such are tardy or inefficient. It becomes necessary also to compel each school to conform to certain *standards of health* in respect of the *school buildings* and *hostels* and their immediate *environments*—such as proper light and ventilation, freedom from noise and vicious surroundings, supply of pure water and pure food, etc. No new school should be permitted to grow up that cannot provide sufficient play ground, sanitary conveniences, a part-time School Health Officer and free or partly free tiffin at mid-day.

No remedy can be lasting, until and unless certain *very urgently necessary educational reforms* are at once undertaken. No one can deny the over-pressure that the present system of education exerts on the unfolding delicate nervous system of the child. The educational over-pressure comes from several directions. It is necessary therefore, to *lighten the burden of curriculum*—I speak specially with reference to boys of tender age. Each year, each school delights in increasing this curricular burden. To lighten

it, it is necessary to divide the education-scheme into five stages as follows :—
 (1) *Nursery School Stage* (ages 3 to 6). This is a scheme requiring money and trained men and women—all of which are wanting. This stage, therefore, has to be put aside for the present. Wherever feasible, it should be undertaken. Book, should never cross the portals of this kindergarten system and by means of play and tasks, "teachers" will imperceptibly lead the pupils to obtain as much information as they can through their senses. (2) *Primary Stage* (6 to 9 years of age). Here by oral instructions all pupils will be taught the three R's and the elements of domestic science and hygiene. Historical legends of different lands, simple vernacular readers, lines of didactic poetry for committing to memory, elementary lesson on agriculture should form a part of the curriculum. A book on Arithmetic (Subhankar) and a reader in the vernacular should be the only books that students should provide themselves with—everything else being taught verbally and practically. Boys and girls of the right age should be by law compelled to go to school. (3) *Secondary Schools* should have pupils between 10 and 15 years of age. It should be the aim of these schools to encourage the pupil to teach himself from facts strewn all about him, in his environments. In these schools, through books, Arithmetic, Algebra and Geometry; Elementary Histories of Bengal, India, and England and Elementary Geography should be taught; and viva voce, instructions should be imparted on Elementary Physics, Chemistry, Anatomy, Physiology, Hygiene and Domestic Economy, with all the necessary charts, instruments and appliances. Curriculum is to be thought of in terms of activity; more stress is to be laid on experiences gained than on the quantity of knowledge memorised. English and Sanskrit or Urdu primers may be introduced. (4) *High Schools* (pupils' aged 15 to 18). At this stage a pupil should have freedom to go in for library, vocational or special courses. (5) *At Colleges*—B.A. and M.A. (science or arts courses) will be taught as at present.

If the educational scheme is broken up into these *easy stages*; if all education is imparted in the *vernacular*; if the Nursery and Primary schools are *held only in the mornings*; if all *examinations* are reduced to general weekly tests on broad principles of basic knowledge; if *home tasks* are abolished; if a *simultaneous curriculum of physical exercises* is insisted on at every stage of the educational fabric; and if ample provision is made for regular *outings*

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and excursions as well as *extra-curricular instruction*, then and then only will it be possible to remove permanently the iniquitous academic burden that is breaking the health of pupils and stunting their physical and mental growth. On several previous occasions I have cried against (a) the system that compels a boy of six to be confined to school from 10 to 4; (b) the crushing series of weekly, fortnightly, monthly, quarterly, half-yearly and yearly examinations and that on hair-splitting marking system; (c) the practice of setting home-tasks which no teacher cares to go into individually; (d) the present system of converting classes into "examining" rather than "teaching" places, with the result that, a boy or girl of tender age is compelled to read three hours in the morning and two hours in the afternoon with private tutor at home, besides being at school for six hours! Students are taught in their hygiene books that after a heavy meal, physical rest is necessary; and yet, every pupil is compelled to break it daily! Students hear of Rest; but know it not! These may look "little" things to the grown up teacher and guardian; but they go a great way in breaking the back of the students. We have made such a fetish of "examinations," that, knowing full well the present system of education to be anachronous, we inwardly shudder at the very idea of having even to change it and part company with the gambling known as Examinations! The indigenous *pathsalas* and *maktabas* (primary schools) and *tols* (colleges) never had it and indeed were all the better for its absence. Legislation should therefore authorise each Union and District Board and Municipality to undertake to conduct Primary Schools, with the aid of local men of light and leading. Secondary and High Schools and Colleges should be the concern of Universities. This is the first set of scholastic changes necessary.

The next group of changes necessary is to secure standardization and uniformity in all schools of each group. Hours of sitting, syllabus of studies (not text-books), vacations and holidays, hours of teaching and recess and dates of examinations (if any) should by law be standardized to give a democratic tinge to the system and to enable Broadcasting to be utilized with effect as an aid to teaching.

The third group of changes necessary comprises—(a) the creation of *Parents' Societies* in every district where there are schools; and of compulsorily including members of this society in the School Committee of manage-

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ment ; (b) the establishment of *Nutritional Laboratory* in each district and of *Colleges of nutrition*, through which every teacher must pass ; (c) Subsidising Film industries to prepare exclusively *educational films* based on mythology, history, geography, hygiene, anatomy, physiology, botany, zoology etc. ; (d) subsidising Radio makers to sell *cheap efficient sets* on hire-purchase system (e) subsidising indigenous companies to make papier mache *models or plaster or wax models, charts, relief maps &c.* ; (f) subsidising district boards to set up Dak Bangalows for temporary reception of *hiking parties* and of transport agencies to help *outing parties*. It may appear strange to some, how I can drag in the items of the last group in a lecture concerning children's health. There are three very striking factors which have very sorely tried my patience, but which do not appear to have much perturbed the educationists. They are firstly, the *indifference to and ignorance of parents and guardians in matters educational*. Until and unless guardians are allowed to mix freely with school authorities and are kept well-informed about the latest matters pertaining to education, they cannot take living interest in the well being of their wards ; and deprived of this interest and friendly "opposition", schools will hardly leave to adapt themselves to the times. All reforms should come from within and commence from the bottom (i.e., from guardians and at homes) instead of being foisted on us from the top and outside, as at present. The second item that I want to stress upon is, the *Extra-curricular education that can be imparted by Bioscopes, Radios, travels, models and charts*, by visits to places of historical importance and workshops. If this side is stressed, the syllabus can be lightened and teaching becomes as pleasurable as impressive. The third fact that has always struck me and struck me most painfully is the *dissociation of the general public (society) from the company of students*. Since the time of Lord Lansdowne, the cry has been growing more insistently, that our students are getting out of hand. Have our friends pondered why? It will take me long to explain it in detail. I shall therefore enumerate here the chief items ;— (a) children grow by *play and imitation*. Where is the personal factor to-day? Parents employ tutors with their eyes rivetted on the clock and step aside ; in school, pupils are taught at every turn, that their guardians are nowhere in the educational machinery ; that all that is noble in and glorious in humanity, occurred only in the west ; and that in questions of orders imposed, the guar-

dians' will is easily ignored at school. (b) Like many other departments of government, education department is a water-tight one, that makes for short sightedness and selfishness. (c) In Towns, mofassil students living in "messes" are *pariahs*; in the various feasts and festivities, in the various amusements and social ceremonies in the *pârâ*, these poor students look on, just as if they were aliens, none of our own children. (d) People possessing surplus wealth do not care to further the interests of education, because forsooth, they are not allowed to mix in educational matters. This state of mutual aloofness renders scholastic atmosphere as if it were sacrosanct. A halo of *unreality* fosters non-co-operation and renders education a *vocation*, instead of being a *mission*. It is necessary on the other hand, to create interest and sympathy all round, so that the rich may voluntarily shoulder the educational burden a good deal. Most secondary schools owe their lives to private efforts; all could have been ours, if only a liberal, sympathetic and co-operative spirit could be introduced at every stage of education. That will bring pupils, teachers, guardians and the people generally together, helping to foster a sense of *self-respect* and respect for the feelings and opinions of *others*, and will help to cement *social friendship*, engendering a lively interest in the *realities of day-to-day life*. It is because students are *weaned* away into an *exclusive* atmosphere and nurtured like *hot-house cultures* on an *exclusively literary course* of "training" (not education)—I can hardly call it Education—that they grow exclusive, wild and emotional *Mass production* on artificial lines which never suits humanity: *each man requires individual care* in as much *natural* surroundings as possible, in closest association with his kith and kin and his society and in a spirit of *grateful reverence for the culture, traditions and teachings of his or her country of birth*. In educating each child, the teacher should be in person, character and conduct an ideal for close imitations; and his one aim in educating will be, to offer help and guidance, rather than supply ready-made knowledge and examine on hair-splitting marking system.

When all these are well-secured, as some day they must be, there will be glorious possibility well established for our country. *Parents and guardians* will vie with one another in furthering the cause of their wards; *schools* will be robbed of their terrors and become areas of higher manhood, and extensions of *Homes* for developing complete manhood in every sense of the term; students will like book and really be, man's men, self-oblivious,

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intensely absorbed in fuller life for self and all, full of constructive and ennobling thoughts and executions ; the *teachers* will be the happy and proud media for building the nation ; and there shall run the golden thread of *joie de vivre* from the lowest to the highest rungs of society. Remember that the student community is a limit of the organic whole—the Bengali Race ; Improving students, therefore, means nothing less than Race Betterment, in which the parents, the teachers, the students and the State must work as a solid body, and health *examinations*, health *education* and *healthy living* shall form one solid item.

INDUSTRIAL OPENING FOR BENGALI BOYS.

Summary of lecture delivered by Mr. D. P. Khaitan.

Mr. Khaitan laid stress on the opening of small and cottage industries, which, he said, would go a long way in relieving unemployment in the province.

If they were to improve their industrial and economic status, he said, it was up to them to make a close study of conditions in this country, especially the condition of producers and consumers, the latter being mostly agriculturist.

The percentage of earners and working dependants in this province, Mr. Khaitan pointed out, was only 29, whereas the non-working dependants numbered 71 per cent. According to the census figures of 1921, the average percentage of workers in the rest of India was 46. In comparison with Bengal's low figure, the percentage in Bihar and Orissa was 49, Bombay 44, Central Provinces 58, Madras 48, North-Western Province 37, the Punjab 36 and the United Provinces 53.

Taking 46 per cent as the average of the number of workers, it would be found that there were about $8\frac{1}{2}$ million unemployed persons in Bengal. They had to find occupation for all these people as well as for the educated middle class youths who were going from door to door in fruitless search of employment. They had to reconcile the needs of the vast number of people who were unemployed in the villages and of the unemployed educated youths of the towns.

AGRICULTURISTS' LOT

Speaking about the condition of agriculture and agriculturists, Mr. Khaitan said that the quantity of agricultural products of Bengal was not sufficient for the consumption of the people of the province itself. Taking into account the average of all-India consumption of food grains, there was a deficit of 1,280,000 tons in the production of food grains in Bengal. The agriculturists did not obtain a margin from their produce with which to buy finished products and other necessaries of life. If they had to improve

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economically they had to improve their agriculture. It was not possible to improve agriculture by itself because the people had no money.

Some supplementary means must be found in order that they could increase their production and improve their lot. Supplementary means would only come from supplementary employment in industrial enterprises. But what kind of industrial enterprise? Should it be large-scale industry or small industry or cottage industry? In replying to these questions Mr. Khaitan said that if goods were produced in large-scale industries sufficient for Bengal's consumption it might find employment for about 800,000 people. Even this, however, would not absorb the legion of the unemployed in the province.

NON-BENGALI WORKERS

Large-scale industries required a vast amount of capital and the wealthy people of the province were not inclined to invest money in large-scale enterprises. There were many jute mills in Bengal but only one of them had been started by the inhabitants of the province. Similarly in the sugar industry, excepting two or three instances all the factories were run by non-Bengalis. Besides, among the workers in jute mills and other large-scale industries the percentage of Bengalis was very small, most of the workers coming from other provinces. That was the situation with which they were confronted to-day.

The only possible solution of the problem, continued Mr. Khaitan, was the opening of small industries and cottage industries, such as the manufacture of toilet requisites, umbrellas, bell metalware, etc., which could be started with a small capital.

VISTAS OF HISTORY

BY MR. KURUVILA ZACHARIAH, M.A., (Oxon).

Principal, Hooghly College.

The title of my talk to-day is *Vistas of History*, a title conveniently vague, which might mean anything. I have myself no clear notion of its meaning, but for that very reason it will serve as a common peg for a few perhaps unconnected thoughts on the nature of history and its study and teaching.

Hesiod, the Greek poet, in a well-known passage, sets forth the stages of human evolution. 'In the beginning' he says, 'a Golden Race of mortal men was made by the immortal dwellers on Olympus.' They lived like gods, with hearts free from care, without part or lot in labour and sorrow. Pitiful old age did not await them. When they died it was as though they were overcome by sleep. All good things were theirs and the bountiful Earth of her own accord yielded up the harvest of grain. Again, a second Race, far worse, a Race of Silver, was made, unlike the Golden in body and mind. When they reached manhood, short was their life and painful through their folly. They could not refrain from baneful outrage upon one another and they would not serve the immortals. Then Father Zeus made yet a third Race, a Race of Bronze, their delight was in the grievous deeds of Mars and in the aggressions of Pride. No bread ever passed their lips, but their hearts in their breasts were strong as adamant and none might approach them. Great was their strength and unconquerable their arms. Yet a fourth Race was made, a better race and more righteous, the divine men of Race Heroic, who are called demi-gods. They were destroyed by evil war and terrible battle. O would that I had not tarried to live thereafter with the fifth Race, for now in these latter days is the Race of Iron. Never by day shall they rest from travail and sorrow, and never by night from the hand of the spoiler; and the gods shall give them cruel cares. Right shall rest with the mighty of hand

and Pity shall be no more. All the sons of sorrowful Man shall have Strife for their help-mate.'

In this passage, which I have greatly shortened, there is not only a summary, but a philosophy of history, the idea of a gradual but not uninterrupted degeneration. Others have seen in the course of human events a story of almost continual growth and progress. Others, again, discern a cyclic pattern, mankind ever coming back again to the starting-point and setting out with fresh hopes and ambitions, only to find itself at last where it began.

My point is that a philosophy of history is implicit in nearly all historians. All sciences and arts are records of selective interpretation. A panorama of the starry heavens does not constitute astronomy; a dictionary is not literature; a photograph is not a painting; the polyphony of sounds that impinges on our ears at any one time does not make music. No more does a mere collection, however, complete and faithful, of things that happen to mankind or any section of it become history. Natural phenomena become the subject-matter of science when they are arranged in the line of general laws, which supply the skeleton of the whole design. Words become the subject-matter of literature when they fall into some deliberate pattern of beauty. Human events become the subject-matter of history when they contribute to some significant conception.

The historian should indeed divest himself of prejudice and the temptation to select or distort facts to suit some pre-conceived idea, as far as possible. But he cannot divest himself altogether of his country, his nationality, his religious beliefs, his moral and social climate and his inheritance of civilisation. He must inevitably take his stand, not in space, but on some actual point of the earth's surface and in some moment of historic time. It does not matter much whether he writes the history of a college, a city, an empire, the history of a hundred days or a universal history, just as a poet may sing of a daffodil or a nightingale, the siege of Troy or Paradise Lost. But in every case he will approach it with an individual attitude of mind, a set of moral and cultural ideas, a philosophy which will colour and unify the whole. Thucydides, perhaps the most accurate and impersonal of ancient historians, wrote as an Athenian who believed in the ideals of Pericles, Gibbon as a rationalist of

the eighteenth century, Macaulay as an English Wig of the nineteenth. Even Lord Acton, the most learned, impartial and scientific historian of recent times, thought he saw in the growth of liberty the connecting thread, the guide through the maze, of modern history.

If my argument so far is valid, and I offer it with much diffidence, the moral is not that history should be written to establish a proposition—that since the content of our minds must affect our apprehension of it, we should approach it with minds tuned to the best and noblest that we know. What we care about will be reflected in our presentation of history, whether as writers or teachers. If we look no wider than our community, we shall inevitably teach it as Hindus, Moslems or Christians; if our affections and hopes are limited to our country, we shall teach it as Indians, a country glorious once, then subject, now renascent, hoping to be once more pre-eminent. But if we see our future and the welfare of mankind bound up with chances of co-operation and good-will among nations, then we shall take a larger view and regard history from a human rather than a narrowly national stand-point. Or take another illustration. The innate snobbishness of mankind has produced a history that glorifies kings and conquerors and chronicles wars, the opportunity for courage in its crudest and fame in its most flamboyant form. We hear much more of Alexander than of Aristotle, of Frederick II than of St. Francis, of Napoleon than of Jenner. And yet when the sum of human achievement is calculated by the eternal measuring-rods, who shall say that the benefactors of mankind shall not dwarf its destroyers? A wide view of history itself is enough to make us pause. How small a part of the work of the great conquerors survives—and that with what mixed results, what uncertain issues for good or evil? And who that considers the age-long, earth-wide diffusion of goodness, beauty of greatness can rest content with an exclusive nationalism? The study of universal history and of history from the universal stand-point, *sub specie eternitatis*, are the best correctives of the selfishness and pride that characterise the world to-day.

Some historians have indeed claimed for universal history peculiar virtues of illumination and instruction. I shall quote to-day from the Greek writers, who may be more interesting because less familiar. Polybius, for instance, considered 'the persuasion that an acquaintance with local history will give

a fair perspective of the whole as erroneous. While the part may conceivably offer a hint of the whole, it cannot possibly yield an exact and certain knowledge of it; and the inference is that the specialists have a singularly small contribution to offer towards a true understanding of world history. The study of general contacts and relations and of general resemblances or differences is the only avenue to a general perspective, without which neither profit nor pleasure can be extracted from historical research.' Diodorus praises the authors of universal histories—he himself was one—for 'their efforts to marshal the whole human race, who are all members one of another, in spite of the barriers of space and time in one magnificent array. In attempting this, they have constituted themselves nothing less than the servants of Providence. God, in His Province, has related in a single system the evolution of the stars of heaven and the characters of men; while the authors of universal histories in their works record the general transactions of the world as though it were a single community and pass the workers of Providence through the grand audit of their clearing-house.'

But, while these syntheses of history are useful and indeed indispensable—and a very suggestive one has recently been written by Mr. Toynbee—Polybius goes too far in his depreciation of monographs. As I have tried to show, it is not so much a universal scope as a universal spirit that gives an abiding moral value to history; and a universal spirit may well animate the history of a city. Newton reflecting on an apple falling deduced the laws that keep the planets from falling; and the study of the particles of an atom may throw light on the galactic system. Universal history, unless it is written on a scale too vast for the ordinary reader or indeed for any except Dominic Sampsons, must necessarily be so condensed, simplified and generalised as to represent less than the whole truth of the complex sum of human affairs. Those who have marked examination papers will have noticed the frequency of too absolute generalisations, the result partly of ignorance, but partly of the effort to compress knowledge into a few lines or pages. Specialised history may not give us historic laws or that wide suggestiveness of comparison and contract, of variation and recurrence, that are the rewards of a wide sweep of the eye, but on the other hand it gives us a clearness and sharpness of outline, a sense of intimate understanding that come only from a close and

sustained inspection. Especially for the beginner, the study of a small period or a single movement in detail is a most useful mental discipline, which teach him as nothing else can how difficult truth is to discern and how desirable.

That brings us to the question of the value of history itself. The ancients saw in it a recording angel preserving from oblivion the deeds and disasters of the past. 'All other memorials', says Diodorus, 'are transitory and exposed to destruction in many ways, but History, whose power extends to the limits of the world, has found in Time, the great Destroyer, a guardian of her everlasting tradition for future generations.' But this record is for our edification. We can, he goes on, 'improve ourselves by taking warning from the mistakes of others, and in all the chances and changes of this mortal life be free to copy the successes of the past instead of being compelled to make a painful trial of the present.' Dionysius of Halicarnassus expresses the same ideas: 'In the first place, good men, who have run their course, will be rewarded with eternal fame and the praise of succeeding generations; while in the second, the living and yet unborn descendants of those heroes will be stimulated to prefer a life of noble ambition to a life of pleasant ease, by the thought that those who have received a rich inheritance to begin with should set themselves a high standard and show themselves not unworthy of their ancestors.'

But when the Greek talked of ambition he always had at the back of his mind the fear of doom. This notion of power that breeds arrogance and calls down the envy and wrath of the gods is the recurrent theme of Greek tragedy. Herodotus puts into the mouth of Artabanus a clear statement of the theory. He says to Xerxes: 'You notice how God blasts with his thunderbolts the animals that overtop their fellows, but the little animals do not arouse his envy. God loves to cut short everything that overtops his kind. God suffers no one to be proud but himself.' To the Greek the defeat of the Persian was an instance of this law. One critic has seen in the history of Thucydides himself the form and motif of a Greek tragedy, revealing the growing insolence and unright of Athens visited by a terrible retribution. The unprovoked conquest of Melos was followed by the unprovoked attempt to conquer Sicily; but there Athens failed and failed stupendously. 'They were defeated at every point; there was nothing on the small scale in any of

their suffering. Their fleet, their army, everything was utterly destroyed; and out of the thousands who had left their homes few ever returned to them.' Polybius is imbued with the same notion. He quotes Demetrius of Phaleron on the mutability of Fortune. 'Supposing fifty years ago some god had foretold the future to the Persians or Macedonians, do you imagine they would have believed that at the present time the very name of Persia—then mistress of almost the entire habitable world—would be utterly blotted out, while the Macedonians, whose name was formerly unknown, would have the world at their feet? In my opinion, this is only one of the signs by which Fortune is always demonstrating to mankind her power, her incommensurability with human reason.' The most rational race that ever lived thus confessed the presence and power of the irrational, the inscrutable, in human affairs. But it is equally characteristic of the Greeks that they gave even the irrational an ethical content—it was insolence that drew down the ire of the gods.

This tendency to find a reason and a law for everything, to moralise history, is implicit in nearly all Greek historical literature. Not only are human events connected, but each is caused by a series of antecedents. Polybius, in particular, insists again and again that history is no mere record of unrelated events, but a connected and explicable sequence. 'What does it profit a reader', he asks 'to wade through wars and battles and sieges of towns and the conquest of peoples, if he does not penetrate to the knowledge of the causes which made one party succeed and the other fail? The results of transactions are merely entertaining to the reader, whereas an inquiry into the previous dispositions of the agents is profitable to the serious student. The analysis of an event, in all the detail of its mechanism, is the best education of all for readers with the patience to follow the process.' Or again, 'in my opinion, nothing is so essential for writers or students of history as to understand the causes that underlie the genesis and development of any given series of events.'

This search for causes is visible in nearly all ancient historical literature, the more especially as, when they did not write universal histories, they wrote generally, not the histories of countries beginning in an unknown past and ending in the uncertain present, but of some definite and complete subject, the March of the Ten Thousand or the history of the Persian Wars. Diodorus indeed says clearly that the writers of histories should choose transactions,

whether of subjects or sovereigns, which are self-contained from beginning to end. Dionysius goes further and urges that the subject should be such as to give pleasure to the readers. Thucydides failed, he says, in this respect, for he wrote of a single war, 'which was neither glorious nor beneficial and would have been better unfought or (failing that) should have been deliberately consigned to oblivion and concealed from posterity.' History, if it is to teach, should draw its readers with delight; hence the subject should be attractive; and every art at the disposal of the historian should be drawn into its service. Thus, the anecdotal abundance of Herodotus and the speeches in Thucydides. These speeches, which occupy almost as large a part in the history of the Peloponnesian War as the choruses do in a play of Euripides, fulfil much the same object; they provide pauses for reflection in the stress of action. These pauses occur in actual life, but are too often neglected in the dramatic or historical representations of life. The comic or clownish element in Shakespearean tragedy provides, a pause for relief; the Greek speeches and choruses provide a pause for reflection and they are justified by the demands of both truth and art. The question of their literal accuracy is irrelevant to their function. Polybius, it is true, urges that the historian should reproduce 'the words actually spoken, confining himself to the most vital and effective passages.' Diodorus, however, recognises that 'history requires the ornament of variety and cannot dispense with such passages on occasion. Full, able and pointed speeches may have been delivered as a historical fact, in which case it would be a mistake to omit them. Or again the subject may be of such importance that the words spoken cannot be allowed to appear unequal to the actions performed. Or a result may be so surprising that we may find ourselves compelled to introduce appropriate speeches to elucidate the puzzle.'

These are some of the ways in which the ancient historian breathed life into the dry bones of history. How the same concreteness and attractiveness of presentation are to be achieved by the teacher is a problem for us to-day. There is no doubt that much of our study and teaching are vitiated by being 'in the air, as if history were an abstract speculation unrelated to the world we live in and of no consequence to conduct. This is largely the result of the tyranny of examinations, so that the ability to marshal a few facts on paper has come to be regarded as the aim of education instead of the true understanding

of who we are, why we are, what we are and where we are and what it behoves us to do. It is the task of the teacher to correct such a misconception at every point, for the mischief of it goes deep into life and character. True knowledge comes from the gradual and progressive correlation of what we do not know to what we know, so that for any fruitful study of history it is indispensable to connect it with the geographical, social and economic background; and where the monuments are not around us pictures are of the greatest assistance for a proper apprehension of the past. The teacher who neglects maps and illustrations, as alas too many do, fails in his duty and can teach at the best but half-truths, for they are remote from reality. Our duty is to make the past live. That cannot be done by the mere use of text-books. It needs knowledge, imagination and the use of all the material aids at our disposal.

The failure to make history 'real' implies, as I have suggested, a failure to profit by it; and it is of vital consequence to us and to our generation that we should gain by the experience of the past. One of the tragedies of humanity is the perpetual recurrence of the same mistakes. Thirty centuries of recorded history still find us in perplexity about fundamental problems. So slow are we to learn that even the ideas and institutions we profess the greatest reverence for survive by a precarious tenure. Toleration, democracy, liberty, exist by sufferance rather than by loyalty. Power, whether national or individual, is proving an irresistible lure; and great political parties, in this country as well as in others, openly declare that they will, when they come into authority, force men into their particular way of salvation. Of the two elemental needs of man, food and clothing, clothing has already become the symbol of political factions and an avowed object of legislative compulsion. It may be no fantastic vision to foresee a time in India when meat or milk, the chapatti or the bowl of rice, may wave fanatic hosts of battle. Man can seldom resist the temptation to act like a god; and to make others do what one wants them to do is the secret or spoken desire of most of us. If by organised persuasion, we call it democracy; if by organised force, we call it some 'ism.'

This belief in organisation and machinery is characteristic of an age when the growth of applied science has far outstripped the growth of the human spirit and even the adaptability of the human body. 'One merit of Greek

'humanism' says a recent writer, 'is to have remembered that the goal of politics is human good; another, to have seen that it can only be reached by human means. This, though it may seem a truism, is not the modern attitude. The vastness and unmanageability of the modern state, the influence of science, the analogies of technology, tempt us to seek our ends through some piece of political machinery. One day it is Liberty or Democracy; the next it is a Dictator or a Plan. International peace is to be secured by a Hague Tribunal or a League of Nations; prosperity to be re-established by Tariffs, or Protection, or Currency Reform. In the last generation Democracy was the master-key, in our own it is Economics. Men are to be saved, in spite of themselves, by an institution, by a technique, by deft manipulation. The last ten years have shaken this belief. The history of the League of Nations has illustrated the truth of Plato's warning: 'Do you imagine that political constitutions spring from a tree or a rock and not from the dispositions of the citizens which turn the scale and draw all else in their direction?' We should have been spared much disappointment since 1918 and been nearer our goal, if we had remembered that institutions are wrested to the uses and moulded to the nature of those who work them, and that men are saved by their virtues and not by their political machinery.'

I began by emphasising the importance of the universal aspect of history, that it is of permanent value only when interpreted in the light of a world-wide community and of eternal principles. I end by emphasising what may seem the other extreme, that history is the story and handiwork of man and not primarily of societies or institutions. It is true that we cannot separate the individual from the human aggregations, but for the future of the race it is perhaps more important for us to believe, and act on the belief, that the state exists for man rather than that man exists for the state. Sophocles, in a famous chorus, sums up the restless might of man:

Wonders are many, but none there be
So strange, so fell, as the Child of Man.
Of the winds of winter he makes his plan;
About his going the deeps unfold,
The crests O'erhang, but he passeth clear.

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Oh, earth is patient, and Earth is old,
And a mother of Gods, but he breaketh her,
To-ing, fro-ing, with the plough-teams going,
Tearing the soil of her year by year.

Light are the birds and swift with wings,
But his hand is round them and drags them low ;
He prisons the tribes of the wild-wood things,
And the salt sea-swimmers that dart and glow.

The nets of his weaving are cast afar,
And his Thought in the midst of them circleth full,
Till his engines master all beasts that are.
Where drink the horses at the desert pool,
That mane that shaketh for his slave he taketh,
And the tireless shoulder of the mountain Bull.

Speech he hath taught him and wind-swift thought
And the temper that buildeth a City's Wall,
Till the arrows of winter he sets at naught,
The sleepless cold and the long rainfall.

All-armed he : unarmed never
To meet new peril he journeyeth ;
Yea, his craft assuageth each past that rageth,
And help he hath gotten against all save Death.

But Sophocles is too clear-eyed not to see that power and achievement
may lead either to good or evil. So he goes on :

The craft of his engines hath passed his dream,
In haste to the good or the evil goal.
One holdeth his City's Law supreme
And the oath of God in his impot soul ;

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High-citied he ; citiless that other
Who striveth, grasping at things of naught,
On the road forbidden. From him be hidden
The fire that comforts and the light of thought !

One of the dangers of the state is that it pretends to be above the moral code and so creates disharmony in human conduct. But man was made for God.

GONDWANALAND (or 'THE LOST CONTINENT').

(Illustrated with slides),

BY E. R. GEE, GEOLOGICAL SURVEY OF INDIA.

If we take a glance at a map of the world, we note that the earth's surface is divided up into a number of rather irregularly-shaped masses—the continents—separated by intervening areas that are covered by the waters of the five oceans—the Atlantic, Pacific, Indian Ocean, the Arctic and the Antarctic. We also realise that, from a point of view of climate, the globe is divided into five fairly distinct zones—an Equatorial zone with a very hot climate over the whole year, the two frigid zones surrounding the North and South Poles, and the two intermediate temperate zones. And had we confined our studies to the arts or the sciences (with the exception of geology) we would probably have had no reason to conceive that these major divisions—into oceans and continents, with their attendant climatic zones—were ever very different from what they are at the present day or have been since the advent of civilisation.

In the study of geology, however, we delve far more deeply into the distant past. Geological investigation takes us back many millions of years beyond the advent of man on this earth, and in pursuing these investigations we find undeniable evidence that, in the very distant past, the earth's major geographical features, its climate, its fauna and its flora were very different from what has prevailed within historical times.

We find in fact that, during one long period of the earth's evolution, the area now occupied by the Himalayas, the Alps, and a large portion of the United States of America, formed an important ocean within which fishes, shell-fish, corals and other marine animals abounded and on the bottom of which sediments, such as clays, sands and limestones were deposited. This ancient sea has been named the 'Tethys.'

To the south of this ocean, was an extensive continent, which included what is now Australia in the east, the peninsular portion of India and South

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Africa in the middle, and a large portion of South America in the west. Evidence shows that at one period of its history, the climate of at least the mountainous parts of this continent approached that of the present polar regions, whilst at a later period a definitely warm, moist climate prevailed allowing for the growth of luxuriant vegetation of a type that is now extinct, and of the existence of animals of types that have long since died out. This 'lost' continent has been named by geologists 'Gondwanaland', a name derived from the old Kingdom of 'Gondwana'—the country inhabited by the 'Gonds' in the Central Provinces.

It is mainly of this 'lost' continent of Gondwanaland that I propose to speak to-day,—but before doing so I will, in as simple language as possible, endeavour to explain how we obtain the evidence which allows us to arrive at such conclusions.

Those of you who live in Bengal are well acquainted with the nature of large rivers and of the capabilities of these rivers in transporting salts in solution and particles of sand and mud in suspension. In fact, were one to believe many of the statements that appear in the daily Press, one would be forced to conclude that the waters of this City could never be freed from pollution even after the most careful treatment. Much of the sediment which is carried in suspension, is deposited in the river bed or, during periods of flood, it is laid down as a thin film over the surrounding flat country and with the passage of thousands of years film after film is added so that eventually a thick layer of soft sand or clay is deposited. If the area in question is one which is striking gradually, this deposition of sand and clay continues so that eventually we may have many hundreds or even thousands of feet of relatively soft sand and clay deposited. As the thickness of the deposit increases, the lower layers are subjected to pressure, caused by the weight of the higher layers, and these eventually become compressed to form hard, consolidated beds of sandstone and clay. These processes obviously take place very slowly, may be over a lapse of many millions of years.

Let us now try and visualise what happens to the human beings, animals and plants that inhabit this particular tract during this same period. As they die, their remains will be covered up by the succeeding layers of sand or mud, those portions of them which decay easily will disappear within a

short period, whilst those portions that are more resistant, such as bones, shells, implements, etc., are likely to be preserved in, or at least to leave an impression on the particular layer of sediment in which they have fallen. Let us suppose that a forest flourishes in a particular spot, we should expect that within the sands and clays of that particular area will be found relics of such vegetation either in the form of actual tree-trunks that have been preserved by the deposition of certain chemicals within the cells of the wood, as definite beds of peat or may be of coal, or at least as impressions on the particular bed of sandstone or clay in which the plant has become embedded.

If, therefore, we have a sequence of sedimentary beds, such as the alluvial deposits that exist around all the large rivers of this country, we can rightly conclude that they represent a true time-scale of the past history of that area, and that any relics of animals, plants, implements etc., found embedded at a particular horizon represent the particular fauna or flora that was in existence at the time that this bed of sand or clay was laid down. Also we could rightly conclude that, any animal or plant remains found in a lower bed belonged to a more distant age than one found at an overlying horizon. For instance, if we go to the Punjab or the Narbada valley of the Central Provinces, we find that the sands that have recently been deposited naturally contain human and animal remains and implements, the same as those in existence at the present day, but if we excavate in the obviously older deposits the relics which come to light include such articles as axe-heads made of stone, flints shaped for cutting etc., such as were used by a race, now non-existent at least in northern India.

Returning to the question of the sediment that is carried by rivers. In addition to that which is deposited in the vicinity of the river channel, a large proportion is carried down to the sea. Here, as a result of the action of the waves and currents it is spread over the sea bottom, the coarser, sandy particles being deposited near the shore in the shallower areas, whilst the finer clay particles are often carried for much greater distances out into the deeper portions of the sea. In these sediments at the sea bottom, were embedded the various marine organisms that happened to inhabit the oceans at the particular times at which the various beds of sand and mud were deposited. As these sediments consolidated into sandstones, clays and shales they retained

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the hard portions of such marine animals, that is to say their shells or their bones or, at least, impressions of the latter made upon the particular stratum. If the temperature of the sea is sufficiently warm, corals may grow where the water is free from mud, and these after they die may give rise to limestones composed largely of coral rock. Limestones may also be formed almost wholly from the shells of marine shell-fish provided sand or mud is not present to cause contamination.

Thus we see that, in the case of the seas also, the sands, clays and limestones deposited include relics of the marine life of past ages. Such relics whether fresh-water, land or marine are known as 'fossils'.

Summarising the above details, we find that by examining a sandstone, clay or limestone rock we can arrive at certain definite conclusions as to the conditions prevailing at the time when that particular rock was deposited. If the rock contains fossils such as plant remains—leaves, tree-trunks, etc., or if it contains the skeletons of animals of a type obviously related to species that live on the land, then we can conclude that such sediments were laid down in the beds of rivers, lakes or swamps in a manner similar to that now taking place over the plains of Bengal or the Sunderbands delta. If on the other hand, the fossils consist of the shells of shell-fish, the bones of fishes of marine type or the remains of corals, then we must obviously conclude that such sediments were laid down on the sea-bottom. Again, it is sometimes possible, from a study of these fossils, to obtain an approximate idea of the climate that prevailed at a particular period.

Having described to you this process of the accumulation of sedimentary rocks—sandstones, shales and limestones—as definite layers one above the other, you might well ask how is it possible for a geologist to obtain access to the lower (older) beds if they are overlain by higher (more recent) deposits. I might draw your attention to the evidence afforded by deep wells, shafts of mines, bore-holes for oil, etc. and from these we certainly do obtain much useful information. Fortunately, however, Nature herself has come to the assistance of the geologist in obtaining this information. On several occasions during the earth's history, the crust of the earth has undoubtedly been subjected to tremendous pressures. The ultimate origin of these stresses, that

are set up in the earth's crust is somewhat uncertain. It is quite possible that it is due to the contraction of the molten or semi-molten interior of the earth.

This action and the resultant buckling of the earth's crust has been compared with what takes place to say an apple, which if stored for a considerable time contracts inside and, as a result, the skin is forced to crinkle into minute folds in order to accommodate itself to the smaller surface that it covers.

As a result of this crumpling, portions of the earth's crust have at widely-spaced intervals of time been thrown into a series of folds and, in consequence, sediments that were laid down on the bottom of the sea or were deposited in the vicinity of large rivers have become elevated above sea-level to form chains of mountain-ranges. Having been uplifted above sea-level and at the same time often fractured, these folded sedimentary rocks immediately become exposed to the corroding action of the weather,—the rain, frost, snow, glaciers and rivers, and are worn into a series of valleys and intervening ridges. As this weathering continues, so the older underlying rocks, with their included fossils, are exposed at the earth's surface.

It is one branch of the geologist's work to examine these surface exposures and to note their fossil contents. This has been done in at least portions of almost every country and as a result a definite classification of the sedimentary rocks into a time-scale has been possible. The broader divisions of this time-scale are as follows : (oldest) Azoic, Palæozoic, Mesozoic and Cainozoic (Tertiary). Now as regards the length of time covered by these various divisions. To begin with it may be mentioned that man's existence on this earth dates back no further than the very late Tertiary ; the historian is in fact concerned only with post-Tertiary events—corresponding in the geological scale to Recent and Sub-Recent times. For many millions of years prior to man's existence, this earth was inhabited by animals, birds and plants of various types, whilst in the seas, marine organisms of many different kinds flourished. An examination of the Tertiary rocks proves the existence of large mammals on the land areas of types different from, but related to those of the present day. Skeletons of those have been found in many places in northern India, in America and other parts of the world. These mammal included the ancestors of the horse, elephant, camel, rhinoceros, etc.

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The marine organisms of that period are also in many cases closely allied to forms living at the present time.

Going back to the Mesozoic period we find relics of huge land and sea animals—dinosaurs of the reptile family, birds, etc. of which are to-day quite extinct.

Within the Palæozoic, much more primitive forms of life existed. None of the complex land animals were in existence until near the end of the Palæozoic, whilst the marine organisms that have been discovered, at least in the early part of the Palæozoic, are of relatively simple types. Land plants, belonging to families that are either extinct or only sparsely represented at the present day, were however prominent in the latter part of the Palæozoic.

In the earlier period, the Azoic, no forms of animal life have been definitely proved.

We see, therefore, that subsequent to the cooling of the earth's crust, that is to say, since the time when the oceans came into being, and the processes of rock-weathering as a result of river-action commenced, at least four huge periods of time have elapsed. In the first, the forms of life that existed were apparently restricted to organisms without hard skeletons, which decayed soon after they died and left no fossil impressions on the sand and clays that were deposited.

During the second period—the Palæozoic, we find the remains of various primitive marine organisms in the early rocks, whilst on the land, a primitive flora of fern-like and other plants came into being. More complex types developed as time progressed so that during the Mesozoic, the land maintained not only such plants as conifers, true ferns, palms and cycads, but in addition a fauna of vertebrate animals, many of considerable size, came into being. During the last of these periods—the Tertiary—fishes and shell-fish, often related to present-day forms, existed in the sea, while on the land, flowering plants of Dicotyledonous type became prominent and the principal animals belonged to the mammal family—the direct ancestors of numerous types that occur at the present day. At the end of this last period, Man came into being and, during the past several thousand years, has gradually gained supremacy .

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The sediments—sands, clays and limestones—that include the fossil remains from which this story has been gleaned are many tens of thousands of feet in thickness.

For such a tremendous thickness of sediments to accumulate it is obvious that an almost unbelievable length of time must have elapsed; whilst in order that the above-mentioned changes in fauna and flora could occur, many millions of years must be allowed. Certain calculations have been made and these indicate the age of the Earth, since the beginning of the Palaeozoic, to be of the order of 600 million years.

Having, I hope, to some extent, digested certain of the general principles of geology, we will now return to the subject that forms the title of this lecture—Gondwanaland.

As the study of the sedimentary rocks of India progressed a most important distinction was noticed between those of the Himalayas and the Punjab-Baluchistan ranges in the north and those of the Deccan or peninsular portion of the country in the south.

In the above-mentioned mountainous areas of northern and north-western India it was found that thick deposits of sediments—sandstones, clays and limestones—had been laid down at the bottom of an extensive sea during a large portion of the Palaeozoic and Mesozoic. These rocks in places abound in fossils—shell-fish, corals, ammonites, etc.

As previously mentioned, it has been proved that this ancient sea—known as the Tethys—continued eastwards into north Australia and westwards via Europe and northern Africa into the southern part of the United States of America.

But when we come to examine the rocks of Peninsular India we find that entirely different conditions prevailed during the Palaeozoic and Mesozoic. Peninsular India is composed mainly of extremely old rocks—rocks that were in existence before the advent of animal or plant life on the globe. Overlying these ancient rocks we find, in places, sediments of Upper Palaeozoic and Mesozoic age, but instead of including such fossils as marine shell-fish etc., they contain fossils which prove conclusively that these beds were laid down—not in the sea—but in and adjoining large rivers, in swamps and possibly lakes. The sandstones and clays contain numerous plant impres-

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sions of which perhaps the best known is called 'Glossopteris' but in addition to these isolated plant remains there occur thick seams of coal—formed undoubtedly from the vegetation that flourished during that period.

In addition to these plant-fossils, some bones of primitive animals of a type that lived on land have been found, whilst in the higher beds Mesozoic age, fossil frogs have been discovered near Bombay.

This Glossopteris flora was of a type quite distinct from that found to the north of the above-mentioned sea—the Tethys, which is again a strong reason for concluding that the two areas were separated by a wide stretch of sea-water across which these land and fresh-water plants could not spread freely.

But, when we examine the equivalent rocks of South America, South Africa, and parts of Australia we find a Glossopteris flora, similar to that of India existed upon these three continents also. As previously mentioned, this whole area, comprising a large part of the southern hemisphere and extending into the northern half of the globe, has been named 'Gondwanaland'.

Now as regards the climate that prevailed in this 'Gondwanaland' continent ; for such a large amount of vegetation to flourish to give rise to such extensive seams of coal, it can be concluded that the weather must have been reasonably warm—possibly at times tropical—and quite moist, whilst the existence of corals in the sea to the north leads to a similar conclusion. Rain must have been plentiful to have allowed the growth of such luxuriant vegetation.

But, if we examine the rocks immediately below these coal-bearing sediments we find—throughout a large portion of Gondwanaland—evidence showing that this warm climate was preceded by one of a very different type, namely one during which the weather was definitely cold and during which glaciers existed at least over the higher parts of this continent.

Those of you who have been fortunate enough to go to Darjeeling, doubtless remember the striking view that is obtained of the snow-covered Kanchenjunga range. As this snow accumulates it becomes compressed into huge masses of ice which extend down the valleys till they reach a sufficiently low level that the warmth of the air causes the ice to melt. These tongues of

ice, which fill the valleys, are known as glaciers. Now, as the ice at the tip of a glacier melts and the ice-cold water rushes away in gushing torrents, so the weight of the ice higher up the valley causes the glacier to move forward. This forward movement is extremely gradual. As the ice of a glacier moves forward, it picks up pieces of rock along its junction with the valley bottom and also along the junctions of the sides of the glacier and the sides of the valley. These pieces of rock and the finer debris are carried forward within the ice of the glacier as the latter moves down the valley and are finally deposited in the lower ground where the tip of the glacier is melting.

Now there is a distinct difference in shape between pieces of rock that are carried along in rushing rivers and those transported in glaciers. If you examine a stream, flowing down the hill-side, you will note that the various pebbles and boulders tumble one over the other and in so doing the corners and sharp edges are all worn off and the pebbles eventually become rounded or oval in shape. Such pebbles are common at certain horizons in the sandstones that overlie and underlie the coal-seams of Gondwanaland, and indicate that they were carried down over long distances by rivers, before they were finally deposited.

The case of pieces of rock that are picked up in the ice of glaciers is however different. Such pieces, being enclosed in solid ice, are not free to tumble one over the other. If they come into contact with the rock surface of the valley, over which the glacier is passing, they are ground down to smooth flat faces in the same way as a precious stone is artificially ground down. Occasionally, owing perhaps to friction against another pebble or against a projecting piece of rock in the valley bottom, the pebble may turn over in the ice. Further movement causes it to be worn down along another plane and so, by the time it reaches the tip of the glacier, where the ice is melting, it may well be worn into a number of flat polished surfaces. Again, should it, during its downward course, be forced over rocks in which certain of the grains are of extremely hard minerals, the flat polished surfaces may become distinctly scratched ; or supposing that the original angular pebbles are of very hard rock, and the rock over which the glacier passes is of a softer texture—such as a soft limestone—the converse may happen ; the pebbles may be little affected

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but the softer rock forming the land surface may be scored with minute grooves or striations.

These characteristic features associated with glaciers can of course be studied at the present day in the case of the glaciers that exist on the high mountain-ranges of the world.

Now, returning to the question of Gondwanaland. Below the sandstones, clays and coal-seams with their abundant plant remains, and resting on the very ancient unfossiliferous rocks, both in peninsular India, South Africa, Brazil and Southern Australia, is found a bed consisting of large boulders and pebbles which, in a number of cases, exhibit the exact characteristics of glacial boulders as distinct from those that have been transported by rivers. Many of these boulders are faceted and some are grooved—striated. In southern India, near Hyderabad, this boulder-bed rests on comparatively soft limestone rocks that formed the land surface during those ancient times. Here, the limestone is grooved, in the same manner as results from glaciers of the present day. There is very good evidence to show that in many cases the boulders of this boulder-bed have been transported considerable distances. For instance, in the Salt Range, Punjab, the boulder bed consists largely of boulders of granites and other rocks of types characteristic of the Rajputana area.

We can therefore be fairly certain that in these, late Palaeozoic times, the climate of peninsular India was definitely cold, and in addition we can conclude that such areas as Rajputana, and probably large portions of southern India were mountainous regions on which a considerable snow-fall occurred giving rise to huge glaciers that transported the rocks of these areas down to the valleys below. The boulder-bed so formed is called by geologists the 'Talchir' Boulder-bed, after Talchir State, in which the bed was studied during the early days of geological investigation in India.

The study of geology therefore proves that during the later Palaeozoic and Mesozoic ages—that is, many millions of years ago—there existed a huge continent (Gondwanaland). This continent included peninsular India, with portions of South Africa and South America on the one side and Australia on the other. At one period during the existence of this continent a very cold climate prevailed with snow-clad peaks and glaciers in certain tracts. This cold climate was followed by a long period during which a

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luxuriant, vegetation—of plants now extincts—flourished, providing material for the formation of thick coal seams in the valleys and estuaries.

Having satisfied themselves of the existence of similar conditions of climate, flora etc. throughout Gondwanaland, the question which next arose in the minds of geological investigators was the following—

We are satisfied that a large stretch of land existed during ancient times to the south of a sea known as the Tethys, and we know that on this land there grew up a very distinct flora—the *Glossopteris* flora. The above-mentioned northern sea—the Tethys prevented this flora from spreading northwards across to what is now the continent of Europe and Northern America. But if this northern set confined the peculiar *Glossopteris* vegetation to this Southern Gondwana continent, how was it possible for it to spread across the Atlantic and Indian oceans so as to inhabit the now-separated countries of India, South Africa, South America and Australia. It is quite obvious that the wide stretches of sea-water that are seen at the present day could not have been in existence in those ancient days. In order to explain these phenomena, geologists postulated the former existence of stretches of dry land linking up these various countries. But there are a number of important reasons against such land-bridges. One of the factors so difficult to explain was, how was it possible for a cold climate to extend over such wide tract in an east to west direction without extending equally in a north to south direction.

To overcome these difficulties, a novel theory has been put forward in recent years. This theory, which was amplified by the Austrian meteorologist—Alfred Wegener—pre-supposes that the continental masses were, during Palaeozoic and Mesozoic times, all grouped together as one huge land-mass and, that at the end of the Mesozoic, this land-mass broke up into the separate areas now forming India, Africa, America and Australia and these moved apart into their present positions.

Such a theory, though at first sight apparently rather far-fetched, explains a number of otherwise difficult problems. These points include :—

(1) The Talchir glaciation.

If we suppose that the continents were grouped together and that a central pole was located in Southern Africa, the extent of this glaciation is simplified.

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(3) Extent of the Glossopteris flora.
(3) Distribution of garden-snails.

These are found in the British Isles in Central Europe, Iceland, Southern Greenland and the extreme east of Canada. To explain this peculiar distribution, we must conclude that at no very distant date these areas were much closer together.

(4) Distribution of fresh-water fishes.

Certain fishes of the Perch family occur across Europe and Siberia and again in the eastern and middle parts of North America.

(5) Distribution of birds, such as the Ostrich, &c.

The ostrich is found in South Africa, whilst related forms—the Emu and Rhea—occur in Australia and South America respectively.

(6) Distribution of Earthworms.

These are confined to Europe and parts of America.

It is difficult to account for the distribution of these different forms of life without supposing that the various areas were much closer together at no distant date.

Exactly what caused the breaking up of this ancient continent of Gondwanaland is, at present, impossible to say. The explanation, therefore, still remains in the realm of theory rather than of fact, but to say the least, it is a theory which solves a number of geological, zoological and botanical problems that otherwise would be most difficult to explain.

FREEDOM AND DISCIPLINE

BY TANAYENDRANATH GHOSE, SANTINIKETAN.

Discipline implies divergence and conflict. The pupil tends one way—the parents, the teachers, the seniors generally, tug another way. In the tug of war that results, the elders, in the name of discipline, compel conformity to their will. The maintenance of discipline thus goes hand in hand with the exercise of superior control of circumstances. This, in short, is the analysis of discipline. Some thinkers have inaugurated a movement for freedom against such discipline. The world has been sick of battles for freedom—one battle has led on to another, old chains of slavery have led on to the forging of newer and stronger ones. The chances in the sphere of education are no brighter. And why?

The new-fangled 'progressive education' takes its stand on a 'new psychology' and these psychologists claim to have probed into the depths of the child's being. The unconscious and the subconscious are said to be more potent springs of action than the conscious. The genius of every individual child has its subtle way of expression. Let the child be free to grow according to the law of its own being. The consequences of this discovery are claimed to be very important in as much as the function of the teacher as well as the parents and other agencies of education reduces itself to a mere guidance and a policy of non-intervention is prescribed as the motto. A progressive school, true to its ideal, is expected, therefore, to make adequate provision for the unfoldment of all the latent powers of the child. According to accepted notions, it has got to be residential, co-educational and to meet the physical requirements of the growing body, as much open-air as practicable. The fulfilment of these conditions places the school on a footing altogether different from what it has been used to be. These changes are apparently very harmless. "Preparation for complete life" is a very attractive slogan, but when the new school demands new relations with the parents, the society, and the entire scheme of things determining the behaviour of all parties concerned, the difficulties crop up in surprising succession. The necessary changes in the curriculum, the new methods of approach on the part of the teacher, the rather

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unconventional mode of life of the pupils, all these have their legitimate appeal but deeper down, the devotion to old values, the fascination for the intellect uninspired by the emotions and unenthused by the spirit, continue unabated. The new school is admired but faith clings to the old order of things. The loyalty to freedom being only superficial, the school soon discovers itself fighting its battle against tremendous odds. The lack of confidence or at best the lukewarm support of their elders generates in the pupils a conflict of contending values and discipline stalks like a nightmare disturbing the tranquility of the precincts of education.

The "new school" demands the 'new teacher' as well. The emancipation of the child needs a congenial school environment. Problems of discipline are not infrequently born of distrust of human nature. The sense of false prestige often stands in the way of developing a right relationship between the teacher and the pupil.

The new teacher has got to take courage in both hands and fling himself right in front of the wayward expressions of the child. The atmosphere of the home has to be so developed that personal relations may not fail to be enriched by that degree of intimacy which characterises all relationship in the family. The attitude of the guardians and society at large goes a great length in the creation of such an atmosphere. The less the school is regarded from the commercial standpoint, the less is the chance of the teacher developing a mercenary outlook.

Space does not allow us to develop these considerations to greater detail. But, as has been stated before, the battle for freedom in the world of education bids fair to be a protracted and arduous business. 'Progressive education' has given such a new orientation to education by making it co-extensive with life itself that no more tinkering at the problems will suffice. The battle has to be fought on many fronts. If there is need for discipline in education, it is more to be thought of in the thoughts and acts of the elders than in the behaviour of children at school. If capitalists and communists, the state and the church and innumerable other interests do not, in their scramble for power, think of exploiting the schools with a view to utilising the future generation of young men, in the furtherance of their respective causes, then educationists and teachers alike would find the issues very much cleared. The ideals of education would

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then be very much more understandable and they would be far less discordant with the facts of life than they are now.

The only discipline that would claim any attention, would be the higher discipline that maintains a state of equilibrium among the contending passions of the human breast, a discipline that is freedom's ally and not any bar to it.

THE SPIRIT OF SCIENCE IN EDUCATION

BY DR. B. C. GUHA., D. Sc., Ph.D. (Lond.)

I propose to speak briefly on one aspect of education, which, I believe, does not usually receive that amount of attention from educationists, which it deserves. And this is so not merely in India, but also practically throughout the world.

To my mind it is essential that special efforts should be made so that the instruction that is imparted to children and young people is informed with the scientific spirit, whatever the subject of instruction. Even science itself can be and too often is taught merely as an assemblage of facts without any reference to the significance of scientific methods in developing the mind. The spirit of science, if properly instilled, not merely develop curiosity and the sense of adventure, but it also helps to remove the all-too-frequent subjective attitude of mind, which inhibits dispassionate judgment. At no other time, perhaps, in the history of the world was this ability of studying complex questions objectively so necessary as at present. Lack of this ability is to a large extent responsible for the perilous situation towards which the world is gravitating. Racial, national, religious and communal rivalries are the result of the same cause. In this respect it is curious to observe that not merely the general public but even reputed scientists are often unable to take the same objective attitude to human relations in this big theatre of the world, which they are accustomed to take in the laboratory in the pursuit of their scientific work. In Europe, recently, well-known scientists have tried to decry the work of other scientists, because the latter happened to belong to a particular community. Such a tragic situation owes its origin to the fact that even scientists are not often imbued with what we have preferred to call the scientific spirit. That the scientific attitude to life is as great a necessity as the scientific attitude to laboratory experiments or to observations of natural phenomena is not realised by large numbers of scientific workers. The need of developing this scientific attitude in the public mind through all instruction, is therefore, an urgent and

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paramount question for all, who wish for a peaceful, harmonious and progressive human society.

Another point to which I should like to refer is the value of the scientific spirit in developing the analytic as well as the synthetic attitude of mind. Science must in its search after knowledge break up things and phenomena into their components and find out the bases on which they are built. At the same time the scientist must use all the resources of a synthetic mind in discovering inter-relationships, the laws that govern natural phenomena and, in short, the unity which binds together apparently diverse entities. The scientific attitude is, therefore, specially calculated to develop the synthetic mind, which seeks to discover unity in diversity. In this respect the true scientist and the true poet become one, because both seek the "thread, which links the jewels." Indeed, it is hardly possible to be a really great scientist without having something of the fire and the amplitude of the poet's imagination and something of the poet's love and intuitive perception of the grand unity.

I would appeal to all educationists, therefore, to see to it that the young learners might be imbued with this spirit of science through their day-to-day instruction, that they might realise that the objective and the analytic-cum-synthetic attitude of mind, which the scientific spirit develops, is the only hold which can keep the course of human society steady and clear amid the waves of passion, that are raging around.

THOUGHTS ON CO-EDUCATION.

BY SURENDRANATH TAGORE.

In inviting you to follow my line of thought in regard to co-education, I make no apology for putting my case from the view-point of the first person singular, because, I take it, in this kind of symposium it is a personal contribution that is wanted from each of us.

Let me, therefore, first set out the things that the word education brings to my mind. As I understand it, education means, in general, bringing out and assisting to fullest growth the faculties and powers with which each individual is endowed and, in particular, it includes appropriate exercise for the strengthening of these, imparting of useful or interesting information, and furnishing with the means of self-expression and inter-communication with fellow-men through language and art. I can see nothing in this list which is not as necessary for one sex as it is for other, or in respect of which the same methods will not serve for both ; it is only in the case of domestic or vocational training, which are beyond our purview, that the need for sex specialisation at all comes in ; so that the nature of the educational process with which we are here concerned clearly does not demand any separation of the sexes.

The problem, therefore, is not one of education but of sex. It presents itself to me thus : What is there for or against our boys and girls meeting each other, interchanging ideas, being of mutual help in their common studies, while attending an educational institution, that is to say, during the period of their lives when their characters are being developed and formed?

So far as my own experience goes, there can be no question that beneficent spiritual forces are brought into play in the cultivated human (as distinguished from the natural) world by reason of sex differentiation. The mutual stimulation and uplift resulting from a co-operation between the sexes, the zest added both to work and play done by them together, are too well known to need illustration. The soil of educational institutions, moreover, is specially suited to the growth of friendship, the fairest flower that blooms in our world, and this loses none

of its value, but rather gains in colour and fragrance when occurring between opposite sexes; and further, in the latter case, the chances are increased of its leading to marriages on the basis of *saha dharma*, a true spiritual mating, by which the society to which such couples belong may shine in fuller lustre, and of which may be born the best specimens of the race.

This picture, to my mind, fits all countries including our own. But I have enough of sympathy in my composition to feel my orthodox opponent's shiver of consternation. "What!" I can hear him exclaim, "You calmly invite us to admire the possibility of matrimonial connections without scope for parental choice, devoid of regard for social bars, subversive of the very structure of our society!" The holy alarm registered by my suppositious opponent warns me that there is some clash of ideals between us. Anent our present subject the clash seems to be of two of these: the ideal of Caste and of Womanhood. So be it. I accept the gauntlet. I will not, however, risk your displeasure by playing the aggressor, but will content myself with a defence of my own position.

As claiming clanship with the ancient rishi, Shandilya (may his *gotra* never grow less!) I am a staunch believer in *Varnashrama Dharma*, but, on the other hand, being also the descendant of a modern Maharshi who has delivered his posterity from the trammels of present-day orthodoxy, I am equally strong in my detestation of *Jati bheda*. Varna means colour,—not colour of the body, but of the character,—namely, temperament; an *ashrama* is the common refuge of a group; *dharma* is that which binds together, or upholds; so that *Varnashrama Dharma* signifies for me the mutual support and power derived from the formation of social groups in accordance with temperamental characteristics, that is to say, according to similarity of ideals, tastes, manners and, in general of the mode of life. That is exactly what I expect will be the effect of co-education and of the friendship and alliances resulting therefrom. On the other hand, *Jati bheda*, as now obtaining, amounts to the artificial and permanent segregation of individuals, even though they may be temperamentally alike, on the ground of the accident of their birth, the lines of demarcation rigidly maintained with all the hostility which orthodoxy has recently displayed. And nothing would please me better than to see not only such, but all lines of irrational separatism, as needless as they are harmful under our present

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conditions, obliterated, as obliterated they are bound to be, by any form of education worthy of the name.

As for Woman she, we are cautioned, will lose her womanliness by engaging in equal contest with masculine intellect. I am not aware that the erudite Gargi, of respected memory, is dubbed unwomanly because she dared to beard the Rishi in his den. So I am inclined to suspect that my opponent's lurking fear really is, that the co-educated girl, when she becomes a wife, may decline to be the humble servant of her lord and master.

Drudging and cooking the livelong day, pleasurable reading tabooed as waste of time; going out for an airing rebuked as an excuse for gadding about; motherhood lauded to the skies, though the mother has no idea of training her progeny to become good citizens, even though she may lose health and life itself in being made to bear more children than their father has the means of rearing;—here is a type of ideal womanhood for you, if ideal you care to call it. As for me, I freely admit that if this is to be perpetuated, co-education is the worst possible thing—in fact, nothing short of no-education will serve.

Do I then propose that our women should be turned into *memshahibs*? Avaunt horrid suggestion! I, with the line of rishis behind me,—Shandilya, Asita, Devala,—am I to be accused of holding a brief for Westernism? No. My mentor is good one Vyasa, Editor of the Mahabharata, and the conception of Womanhood he offers for our edification is what appeals to me.

Said Ganga Devi to King Shantanu, when he made advances to her, "Your fancy leads you to do me the honour to desire me. But I am entrusted by the gods with the mission of bringing certain children into the world under the best possible auspices. I will be your consort in your kingly duties and accept you as worthy to be their father by virtue of your illustrious lineage and your excellent upbringing, so long as by your conduct you do not frustrate the fulfilment of the divine purpose of which I am in charge. Should you ever do so, I shall at once leave you." And she was as good as her word!

Here, in a nutshell, our sapient Rishi indicates the considerations which should lead a woman to accept a proposal, the conditions on which she should continue to live with the mate of her choice, and finally the contingency in which she should insist on separating from him. This is the ancient Aryan ideal that I have the pleasure to commend to advocates of co-education.

So far I have been thinking and speaking of cultivated human character.

There is, of course, always the danger of man's animal nature obtruding itself, leading to undesirable manifestations of sorts, such as no one, whatever his ideals of society may be, can view with equanimity. Well, I cannot but admit that the original animal does unfortunately now and again raise its head in human concerns, and is nothing but nuisance in whatever connexion it may happen to do so. Even rishis like Vishwamitra and Parashara were unable to escape improper sexual entanglements. But there is this much to be said for co-education, that an educational institution, where other and larger interests habitually occupy the mind, is the last place in which animality is likely to be rampant.

Rather, in this respect, the greater culprit by far is the influence of our usual kind of home-life with its persistent over-sexing of woman. On the one hand, she is enjoined to shrink and cover and hide away from men, even in the case of certain members of the family, for fear of the consequences of her sex appeal. On the other hand, she is encouraged to cultivate all the arts and wiles necessary to win her prospective husband and keep him attached to her. In effect, the poor girl is first of all deliberately trained to look on herself and behave as a *kamini*, and then for reward she is bracketed with *kanchan* (even by sannyasinis who surely should know better) as poison to be shunned by the man who would ascend the religious ladder !

Alas for the land of Aryavarta, that within its sacred fold both *nara* and *nari* should not be brought up to know that only a small part of their significance is concerned with gender of which, moreover, the functioning requires to be governed by considerations of hygiene and economics,—and that the vastly important thing for them is, to realise that they are co-ordinate elements of Narayana and as such their highest duty and joy should be to equip themselves for co-operating, with equal efficiency and in mutual amity and esteem, in the fulfilment of His grand design. It is as a means to this end that I am in favour of co-education, conducted with the requisite ideals kept clearly in view.

In conclusion I would like to make it up with my imaginary adversary. It strikes me that our divergence, after all, is not so much in ideals as in experiences. The victim of an environment of sex segregation naturally can have no real idea of what he loses by it, or what is to be gained by its removal. One

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who has been taught to regard women as perishable goods cannot help being mortally afraid of letting them out of custody.

The strange part of it is the blindness of orthodoxy, even when it is nationalist, to the fact that women whose very souls are thus cribbed and cabined can hardly be expected to have any expansive view of nationhood to hand on, but are bound, rather, to perpetuate their own unreasoning fears and antipathies by planting them in the impressionable minds of their children, as seeds of future communal dissensions and thorns in the way of all attempts at national unification.

The vicious circle that has thus been hampering our nation-building enterprises can best be broken by co-education; for, as we who know can assure those who don't, once the sexes have revelled in the enlivening air of their common humanity, nothing can coax them back into the closeness of their old walls of separation.

I am afraid the reading of my speech has detained you too long. I can only hope that my plain speaking has not shocked some of you too much.

শিক্ষার স্বদেশী রূপ

শ্রীকৃতিমোহন সেন, শাস্তিনিবেতন, বীরভূম

জ্ঞানের জগ্ন ব্যাকুলতা ভারতের চিরস্ত ধর্ম। উপনিষদাদি এছে আমরা দেখিতে পাই তখনকার দিনে শিক্ষালাভের জগ্ন কি তৌর আগ্রহ। কাশী বিদেহ পাঞ্চাল প্রভৃতি স্থান তখন ক্রমে উঠিতেছে বিখ-বিছালয়ের আদিভূমি হইয়া। ভিন্ন ভিন্ন শিক্ষা পদ্ধতি ও গুরুপরম্পরা যে ক্রমে গড়িয়া উঠিতেছে তাহার সম্মানও আমরা পাই উপনিষদে। এই সকল শিক্ষালয়ের দ্বার নারীদের কাছেও ছিল অবারিত। তখনকার শিক্ষা-ক্ষেত্র ছিল তপোবনে।

ক্রমে তপোবনের স্থানে গড়িয়া উঠিতে লাগিল জৈন ও বৌদ্ধ যুগে শিক্ষায়তন্ত্রগুলি। সেখানেও সাধনা শুরু ও শিষ্যের মর্মগত যোগ লইয়া। কি ব্রহ্মচর্যের যুগে কি বৌদ্ধ যুগে শিক্ষার সব ভার সমাজই করিয়াছে বহন। শুরু শিশু সবাই সমাজের পালনীয়। সমাজই চিরদিন সামরে ব্রহ্মচারী বিছার্থীদের পালন করিয়াছে, অঙ্কার সহিত শুরু ও অধ্যাপকদের জীবনের সহজ অভাবগুলি মোচন করিয়াছে। ধর্ম কার্য মনে করিয়া ধনীরা আপন আপন গৃহে অম ও জল সত্ত্বের শ্রা঵ শিক্ষারও সত্ত্ব করিয়াছেন স্থাপন। কারণ গ্রীকদের মত জ্ঞান আমাদের দেশে ব্যক্তিগত সম্পত্তি নহে। ইহার ক্রয় বিক্রয় চলে না। জ্ঞান ছিল এদেশে সবাইরই সাধনার ধন, সাধারণ সম্পদ।

বৌদ্ধ রাজত্ব হীনবল হইয়া আসিলে বৌদ্ধ বিখ-বিছালয়গুলিও আসিল ক্ষয়িয়ু হইয়া। তখন শৈব শাস্ত্র বৈক্ষণবাদির মতের শুল্কগণ আপন আপন স্থানে বসিয়াই দিতে লাগিলেন শিক্ষা। ক্রমে ভারতীয় শিক্ষা ও কালচার আসিয়া আশ্রয় লইল চতুর্পাঠীগুলিতে। বিগত কয়েক শতাব্দী ধরিয়া এই চতুর্পাঠীগুলিই এই দেশে জ্ঞানের প্রদীপ রাখিয়া দিল জ্ঞানীয়া। চতুর্পাঠীগুলির প্রাণের পরিচয় আজ কয় জন জানেন?

শাস্ত্রের শিক্ষা হইত চতুর্পাঠীতে। এই শিক্ষা ছাড়াও আমাদের একটি শিক্ষা ছিল যাহা আউল-বাউল-দৱবেশগণ, সন্ত ও সাধকগণ দিতেন আপন শিক্ষা

ও অমুন্মানীদের মধ্যে। এছ শাস্ত্র ও অক্ষর পরিচয় ছাড়াই চলিত এই শিক্ষা। কিন্তু সেই শিক্ষার আলোচনা আজ আমরা করিতে চাই না।

১৮০০ খ্রিষ্টাব্দের কাছাকাছি W. Ward নামে একজন ইংরাজ “History, Literature and Mythology of the Hindus” নামে একখানি এছ লেখেন। যদিও তাঁর চিত্ত এই দেশের শিক্ষা দীক্ষার প্রতি অমুকুল ছিল না, তবু তিনি এই চতুর্পাঠীগুলিকে কলেজ বিদ্যালয়ে অভিহিত করিয়াছেন। তিনি কাশীর এইরূপ ৮৩টি কলেজের ও বাংলা দেশের শতাধিক কলেজের পরিচয় দিয়াছেন। তবু পূর্ববঙ্গ মিথিলা প্রভৃতির কোন খবর তাঁহার জ্ঞানাই ছিল না। তিনিও চতুর্পাঠী-গুলির বাহিরের পরিচয় দিয়াছেন, ভিতরের পরিচয় তাঁর জ্ঞানার সম্ভাবনাও ছিল না।

অতি প্রাচীন যুগের জ্ঞান-দীপ্তি কাশী মধ্যসূর্যে যখন হতগোরব হইয়া আসিল তখন নব নব চতুর্পাঠী স্থাপন করিয়াই নৃতন করিয়া কাশীকে উদ্বোধিত করিয়া তুলিলেন হই বিধবা তপস্বী—অহল্যাবাই ও রাণী ভবানী। তাঁহারা প্রত্যেকে প্রতিদিন একটি করিয়া বাড়ী ভূত্বস্তিসহ দান করিয়া ৩৬০ জন অধ্যাপককে কাশীতে করিলেন প্রতিষ্ঠিত। কাশী নবজীবন লাভ করিল।

আজও কাশীতে ভারতের প্রাচীন জ্ঞান ধানকে জাগাইয়া রাখিয়াছেন এই সব মহাজ্ঞানী পণ্ডিতের দল। তাঁহাদের অধিকাংশই আজ যে কি দারিদ্র্যের মধ্যে জীবন যাপন করেন তাহা আপনাদের ধারণারণও অতীত। অথচ আমাদের অস্তুভুক্তির মোটা মোটা দানে পরিপূর্ণ কাশীর পাণ্ডু প্রভৃতির দল। আদর্শভূষ্ট এই সব তীর্থগুলুরা নিজেরাও চলিয়াছে রসাতলে, সমাজকেও টানিয়া চলিয়াছে সঙ্গে সঙ্গে।

তবু আজও কাশীতে চতুর্পাঠীর অস্ত নাই। কাশীর এক একটি অংশ এক একটি দেবালয়ের অধীন বা অস্তগৰ্হ। পূর্বে নিয়ম ছিল এক এক অস্তগৰ্হের অধ্যাপকগণ এক এক সময় একত্র হইয়া নিজ নিজ বিষয় ও শিক্ষার সময় স্থির করিয়া নাইবেন। অস্ত অস্ত অস্তগৰ্হের মহামহা অধ্যাপকদের শিক্ষা ব্যবস্থার সঙ্গেও যোগরক্ষা করা হইত। তাই ছাত্ররা আপন ও অস্ত অস্তগৰ্হে যথাভিলম্বিত ভাবে পাঠ গ্রহণ করিতে পারিতেন। মন্দিরে মন্দিরে দণ্ডঘন্টাগুলিই সময় নির্দেশ করিয়া দিত। দারিদ্র্যের মধ্যেও গুরুজনের স্নেহ ও কাশীর নিত্য নব নব

উৎসব তাহাদের মনকে রাখিত সরস করিয়া। কাশী প্রভৃতি তীর্থঙ্গলির চতুর্পাঠীর ব্যবহাৰ ও শিক্ষাবিধান আমাদেৱ এখনও দয় করিয়া অঙ্গসজ্ঞান কৰাৰ ঘোগ্য। শায়বাদার্থ ব্যাকৰণ প্রভৃতি শাস্ত্ৰ সাধাৱণেৰ পক্ষে নীৱস ও অনধিগম্য হইলেও পুনৰাগ কথা, ধৰ্মতত্ত্ব প্রভৃতি সৱস ও সৱল করিয়া সহজ ভাষায় প্ৰতিদিন নানা স্থানে সাধাৱণ লোকেৰ কাছে ধৰা হইত। সাধাৱণ লোকেৰ যথাসাধ্য এই সব শিক্ষার ব্যবহাকে ভঙ্গিভৱে প্ৰতিপালন কৰিত। পশ্চিম ও আকৃতজনেৰ মধ্যে প্ৰাণেৰ নাড়ীৰ ছিল একটি সহজ ও সৱস ঘোগ।

বাংলাদেশে শুকুৱ গৃহই চতুর্পাঠী, সেখানেই ছাত্ৰৱা বাস কৰিতেন। শুকুৱ তাহাদেৱ পিতা, শুকুপঞ্জীই মাতা। চাৰিপাশেৰ নিৰ্জন শাস্ত্ৰপ্ৰকৃতিৰ পৱিবেষ্টন তাহাদেৱ মনকে রাখিত সদা সৱস। শুকুশিক্ষ্য সবাই দৱিজ, কিন্তু জানে ও শ্ৰীতিতে তাহাদেৱ ভাণ্ডাৰ ছিল ভৱপূৰ। শুকুগৃহেৰ সংকে প্ৰেমেৰ এমন একটি ঘোগ ছিল যে ছাড়িয়া আসিবাৰ সময় ছাত্ৰৱা চোখেৰ জলে ঘাইতেন বিদায় লইয়া।

অধ্যাপক আপন সন্তান ও ছাত্ৰদেৱ লইয়া এক জায়গাতেই থাইতে বসিতেন। শুকুপঞ্জীগণও আপন সন্তানেৰ ও ছাত্ৰদেৱ মধ্যে কোনো ইতৰ বিশেৰ কৰিতেন না। ছাত্ৰৱা বাড়ীৰ ছেলেৰ মতই নানা উপজ্বব কৰিতেন। উপজ্বব না কৰিলে শুকুপঞ্জীগণ দুঃখ কৰিয়া বলিতেন, “ওদেৱ এখনও পৱ-পৱ ভাৰ যায় নাই।”

শুকুৱ ছিলেন পিতা আৱ সতীৰ্বাই ভাই, এমন ভাৰে একটা সম্পৰ্ক চিৰ-কুায়ী হইত। শুকুশিক্ষ্য পৱল্পৱাতে বেন একটি বৃহৎ পৱিবাৰ চলিত। কেহ বড় ভাই, কেহ ছোট ভাই, কেহ জ্যেষ্ঠা, কেহ কাকা—ইত্যাদি। স্নেহ ও আনন্দিকতাৰ আৱ সীমা ছিল না। তখনকাৰ দিনেৰ গ্ৰামেৰ শুভতিৰ মধ্যে এই সব ছাত্ৰজীবনেৰ স্নেহেৰ উৎপাত উপজ্ববেৰ মধুৱ শুভতি কৱণ হইয়া ভৱিয়া উঠিয়াছিল। দুঃখেৰ কথা আজ আমৱা সেই সব কাহিনী তুলিতে বসিয়াছি।

বিক্ৰমপুৱে এক অধ্যাপকপঞ্জী ছিলেন ধৰীৱ কল্যা, ছাত্ৰদেৱ উৎপাত সহনে অনভ্যস্ত। অধ্যাপক বাবীৱ গৃহে আসিয়া ছাত্ৰদেৱ উপজ্ববে তিনি একটু বিচলিত হইলেন। তাৰ খাঙড়ী ইহা টেৰ পাইয়া বলিলেন, “আহা বৌমা ; ওৱা ঘৰ বাড়ী ছাড়িয়া আসিয়াহে। এই জো তাদেৱ বাড়ী ঘৰ। আপন ঘৰ ঘনে কৰিয়া বদি একটু অত্যাচাৰ কৰে, তাতেই বদি বাপ মাঝেৰ কথা ভুগিয়া থাকে

তবে না হয় একটু করুক।” সেই অধ্যাপকপঞ্জী নিজেই বৃক্ষ বয়সে আমাদের কাছে তাঁর প্রথম বয়সের অসহিষ্ণুতার কথা বলিয়া ছঃখ করিয়াছেন।

কাশীতে কেশব শাস্ত্রী নামে ছিলেন এক মহারাষ্ট্র দেশীয় অধ্যাপক। তিনি বিগঠীক ও নিঃসন্তান। তাঁর এক ভগী ছিলেন গৃহের কর্তা, সবার তিনি “বুরা” বা পিসিমা। কেশব শাস্ত্রী ছিলেন মহামান্ত পণ্ডিত; নানা স্থান হইতে আগত ফলযূল মিষ্টজ্বে তাঁর ঘর সদাই পূর্ণ ধাক্কিত। দুখ সর প্রভৃতিরও কোনো অভাব ছিল না। আমরা যদি উৎপাত করিয়া সেই সব লৃটপাট করিয়া না খাইতাম তবে পিসিমা ছঃখ করিয়া বলিতেন, “এখন কি আর ছেলেরা তেমন করিয়া সকলকে আপনার করিয়া সহিতে পারে? আগে কি আমার শিকাণ্ডি এমন করিয়া পূর্ণ ধাক্কিতে পারিত?”

এইরূপ স্নেহ ও সন্দৰ্ভতা ছিল অধ্যাপকগণের ঘরে ঘরে। কাশী হইতে চলিয়া আসার কয়েক বৎসর পর একটা জনব উঠিল আমি মারা গিয়াছি। তারপর কাশীতে হঠাত খবর গেল যে কথাটা মিথ্যা। তবু অধ্যাপকগণের মধ্যে যাঁহারা জীবিত ছিলেন তাঁহারা লিখিয়া পাঠাইলেন আমাকে কাশী যাইতে। আমাকে দেখিয়া সকলে কি খুসী! সর্বাঙ্গে হাত বুলাইয়া মায়ের মত কত আশীর্বাদ করিতে লাগিলেন।

যেমন ছিল তাঁহাদের অপরিসীম স্নেহ তেমনি ছিল অপরিমেয় জ্ঞান ও অটল কর্তব্য-নিষ্ঠা। বিশ্বিষ্ঠত গঙ্গাধর শাস্ত্রী মহাশয়ের একমাত্র পুত্র দুঃচরাজ ছিলেন আমাদের অস্তরঙ্গ বন্ধু। হঠাত অস্মৃতে তিনি মারা গেলেন। আমরা কেহই জানি না। শাস্ত্রী মহাশয় যথা-রীতি অধ্যাপনা করিলেন; কিন্তু তাঁহাকে হঠাত মনে হইল অত্যন্ত জীর্ণ। যখন দুঃচরাজের খোঁজে গেলাম তখন তিনি বলিলেন, “বাবা, এমন স্থানে তিনি গিয়াছেন যেখানে তোমাদের কষ্ট পৌছিবে না।” প্রথমে বুঝিতে পারিলাম না। যখন বুঝিলাম, তখন বলিলাম, “তবে আপনি অধ্যাপনা বন্ধ করিলেন না কেন?” তিনি বলিলেন, “বাবা, নানা স্থানের শত শত বিঢ়ার্দী এখানে সমাগত, তাঁহাদের শত শত মুহূর্ত নষ্ট করিবার কি অধিকার আছে আমার? শোক আমার একলার, সাধনা সকলের। সবার সাধনা ব্যাহত করিতে পারি এমন অধিকার তো আমার ন্যূই!” তাঁহার অটল নিষ্ঠা দেখিয়া স্মৃতিত হইলাম।

গুরু শিষ্টের মধ্যে যে স্নেহ-শৰ্কাৰ তখন দেখিয়াছি তাহা এখন ধারণা কৱা কঠিন। একবাৰ গঙ্গাধূৰ শান্তী মহাশয়েৰ গৃহে অধ্যয়নেৰ নিমিত্ত আমৰা প্ৰতীক্ষা কৱিতেছি, শান্তী মহাশয় ভিতৰে আছেন, এমন সময় এক অপৰিচিত অতিবৃক্ষ পশ্চিত আসিয়া উপস্থিত। আমৰা তাহাকে ঘৰাণীতি পাঢ়াদি দিয়া অভ্যৰ্থনা কৱিলাম। শান্তী মহাশয় বাহিৰে আসিয়া তাহাকে বৰোজ্যোৰ্জ দেখিয়া অচেনা কৱিতে গেলে তিনি বলিলেন, “ধাৰ্মন, আপনিই বিচাৰ কৱিয়া বলুন আমি আপনাৰ সপৰ্য্যা গ্ৰহণ কৱিতে পাৰি কি না। আমি আপনাৰ পিতৃদেবেৰ সতীৰ্থ। এক রাজাৰ ধৰ্মাধিকৱণেৰ ভাৱ লইয়া আমি কাৰী ছাড়িতে বাধ্য হই। তখন আমাৰ কতকগুলি গ্ৰহ্য অৰ্জ-অৰ্হীত ছিল। বছৰৎসৰ পৰে আমি কাৰীতে পুনৱাগত। গুৰু পৱন্পৰাগত ‘দেশনা’ দিতে সমৰ্থ আমাদেৱ মধ্যে একমাত্ৰ আছেন আপনি। তাই মনে কৱিয়াছি আপনাৰ কাছে ঐ গ্ৰহ্য কৱখনা সমাপ্ত কৱিব। তাই সতীৰ্থপুত্ৰ হইলেও আপনি আমাৰ ভাৰী গুৰু। আপনাৰ সপৰ্য্যা গ্ৰহণ কৱা কি উচিত হইবে ?”

শান্তী মহাশয় বলিলেন, “বছদিন আমি পিতৃহীন। আজ পৱন ভাগ্যবলে আমাৰ গৃহে তাহাৰ সতীৰ্থ সমাগত, এমন শুভযোগ কি আমি উপেক্ষা কৱিতে পাৰি? অথচ আপনি অভ্যাগত দেশনাৰ্থী, কাজেই অপ্রত্যাখ্যোয়। তিন দিন আপনি আমাৰ সৎকাৰ স্বীকাৰ কৱন, তাৱপৰ আপনি না হয় পাঠ গ্ৰহণ কৱিবেন।”

তিন দিন তাহাৰ সৎকাৰ চলিল। চতুৰ্থ দিনে দৰ্জপাণি হইয়া তিনিও অস্তান্ত ছাত্ৰদেৱ সঙ্গে বসিয়া পাঠগ্ৰহণ কৱিলেন এবং পাঠাস্তে সূমিগতপ্ৰণতিপূৰ্বক বিদ্যায় লইলেন। শৰ্কাৰ সেই অসুপম চিত্ৰটি চিৱদিন আমাৰ মনে জীবন্ত ধাৰিবে। শৰ্কাৰ আমাদেৱ দেশেৰ সাধনাৰ প্ৰাণ। গুৰুশিষ্টেৰ মধ্যে যোগেৱ মৰ্মবস্তুই ছিল এই শৰ্কাৰ।

স্নেহ, নিৰ্ভাৱ ও শৰ্কাৰ ছাড়া চতুৰ্পাঠীৰ একটি বিশেষত্ব ছিল তাহাৰ শুচিতা। আমাদেৱ দেশে পাঠশালা প্ৰতিতি নানা বিষয়ায়তমে তখনকাৰ দিনে মাৰধৰ গালাগালি তাড়ন ভৎসন কৃতভাৱে প্ৰতিতি লাগিয়াই ছিল। পাঠশালা প্ৰতিতি এই সব বালাই কেুখা হইতে আমদানী হইল তাহা বলিতে পাৰি না, কিন্তু চতুৰ্পাঠী ছিল এই সব মলিনতা হইতে চিৱদিন মুক্ত। শৰ্কাৰ হইতে পড়াইতে হঠাৎ

কোনো অশুচি কথা মুখ দিয়া বাহির হইয়া পড়িলে গুরু তৎক্ষণাং অধ্যাপনা স্থগিত রাখিয়া আচমন করিয়া ভগবৎস্মরণ করিয়া পুনঃ অধ্যাপনে প্রবৃত্ত হইতেন। “অপভাষা” অর্থাৎ অশুচি কথা একটা প্রায়শিক্তীয় অপরাধ। গুরুতর “অপভাষা” ঘটিলে সেদিনকার মত পাঠ বঙ্গ করিয়া পরদিন কৃতস্মান ও কৃতাচমন হইয়া পুনরায় পাঠারস্ত করা হইত।

এই প্রসঙ্গে আমার পিতামহের সমকালীন বিক্রমপুরের অভিতীয় ধর্ম-শাস্ত্রগুরু কালীশিরোমণির নাম চিরস্মরণীয়। এই পৃতচরিত্র শুক্ষ্ম্য অধ্যাপকটি কাহাকেও “আপনি” ছাড়া “তুমি” বলিয়া সম্ভাষণ করিতে পারিতেন না।

একদা মধ্যাহ্নের পর তিনি অধ্যাপনার্থ বাহির বাড়ী যাইতেছেন এমন সময় দূর হইতে শুনিলেন ঘরে বসিয়া তাহার ছাত্রদের মধ্যে একজন অগ্রকে একটু কুৎসিত ভাষাতে রসিকতা করিলেন। তিনি যে আসিতেছেন তাহা তাহারা জানিতে পারেন নাই। তখন একটি কুকুর পথে শুইয়া ছিল। শিরোমণি মহাশয় সেই কুকুরটিকে বলিলেন “মহাশয় একটু উঠিয়া পথ ছাড়িয়া দিবেন কি ?” ছাত্রেরা বলিলেন, “শিরোমণি মহাশয় আবার কথা বলেন কার সঙ্গে ?” বাহিরে আসিয়া দেখেন শিরোমণি মহাশয় কুকুরের সঙ্গে সম্ভাষণে রত।

বিশ্বাপন ছাত্রদের দিকে চাহিয়া শিরোমণি মহাশয় বলিলেন, “বাবা, কুকুরকে কি আমি গালি দিয়া উঠাইতে পারিতাম না ? সেতো আর প্রতিবাদ করিতে পারিত না। কিন্তু প্রতিদিন মলিন বচনে অভ্যন্ত হইলে রসনা হইত অশুচি ও অসর্ক। হয় তো একদিন হঠাত মাঝ-জনকেও করিতাম অপশন প্রয়োগ ! সংজ্ঞত-অসংজ্ঞত স্থান-কাল-পাত্র বিবেচনা কি সব সময় ধাক্কিত ? সেই ক্লপ দুর্গতি হইতে আস্তরক্ষার জন্যই এই সাবধানতা !” ছাত্রেরা তখন আসল কথাটা বুঝিতে পারিয়া মাথা হেঁট করিয়া রহিলেন।

সংস্কৃত বা প্রাকৃত সাহিত্য কোনো এহই গুরু-শিষ্যের মধ্যে তাড়ন শীড়ন বা অপভাষণের একটুও উল্লেখ নাই। সিঙ্গু হইতে বঙ্গ ও কাশ্মীর হইতে কুমারিকা পর্যন্ত ভারতের কোনো প্রদেশে বর্তমান বা পুরাতন কোনো যুগে গুরু-শিষ্যের এই পৰিত্ব সম্বন্ধ এই ক্লপ কোনো মলিনতার দ্বারা দূষিত হয় নাই।

গুরু-শিষ্যের মধ্যে চির দিনই সম্বন্ধ ছিল স্নেহ ও অক্ষাত্ব। এই ভাবসমের মধ্য দিয়াই গুরু যে জ্ঞান দিতেন শিষ্য সেই জ্ঞান সহজ ভাবে পাইতেন। স্থঠনের

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জারক রসে জব না হইলে দেহ যেমন খাতকে ঘীকার করিতে অসমর্থ তেমনি শ্রীতি ও শ্রদ্ধার প্রাণরসে জব না হইলেও চিম্ব অয় হয় না আপনার ।

এই রূপ কত কাহিনীই আর বলিব ? এই সামাজিক দিগন্দর্শনের দ্বারাই তখনকার ভাবটি বুঝা যাইবে ।

চতুর্পাঠীগুলির প্রতি শ্রদ্ধা থাকা সত্ত্বেও এ কথা বলিতে পারিব না যে, এখন তাহাদের সম্বন্ধে আমাদের করণীয় কিছুই নাই । এখন চতুর্পাঠীগুলি সমাজের সহায়তা ও শ্রদ্ধা দ্বারাইয়াছে । শুরু তখনকার দিনে দরিজ হইলেও গৌরবহীন ছিলেন না । কিন্তু আজ তাহারা দুরারাধ্য রাজব্যবস্থা, বড় বড় রাজভূত্য ও ধনীদের দ্বারে সাহায্যের ব্যর্থ দরবারের অগোরবে হইয়াছেন হতমান । আমাদের দেশের ভবিষ্যৎ যাহাদের হাতে হইবে রচিত তাহাদের এই আস্ত্রবমাননার মধ্যে পাতিত করিয়া আমরাও কিছু বিচক্ষণের কাজ করি নাই ।

আমরা দরিজ, যথেষ্ট ধন দিতে অসমর্থ, কিন্তু শ্রদ্ধা সম্মানও যদি যোগ্য পাত্রে না দেই তবে তাহাদের পাইব কেমন করিয়া ?

আমাদের ভবিষ্যৎ সাধনার জন্য যে সব বাধা জমিয়া উঠিয়াছে চতুর্পাঠীকে সেই সব হইতে মুক্ত করিতে হইবে । জাতি বর্ণ নারী পুরুষ নির্বিশেষে চতুর্পাঠীর দ্বার সকলের কাছেই করিতে হইবে অবারিত । বাস্তু আলোক আকাশের শ্যায় শাশ্বত প্রাণ-বস্তুতে সকলেরই যে সমান অধিকার ।

সে কালে আমাদের চতুর্পাঠীতে যাহা যাহা অধীত হইত তাহাই এখনও আমাদের পক্ষে যথেষ্ট, এমন কথাও বলিতে চাহি না । জীবন যাত্রা এখন হইয়া দীড়াইল জীবন যুক্ত । দেশী-বিদেশী কোনো সম্ভলকেই যে আর উপেক্ষা করা চলিবে না তাহা বুঝিবার দিন আজ সমুপস্থিত । এখানে কোনো সর্বনাশ আস্ত্রাতী সঙ্কীর্ণ বৃক্ষিকে প্রশ্রয় দেওয়া চলিবে না । আজ জগতের সর্বস্থানের সর্ববিধ জ্ঞান বিজ্ঞান সাহিত্য কলা ইতিহাস দর্শনাদিকে দ্বার খুলিয়া নাইতে হইবে আবাহন করিয়া । আমাদের জ্ঞানসাধনা ও কর্মসাধনার ক্ষেত্রকে সর্ববিধ সঙ্কীর্ণ সংস্কার ও বক্তন হইতে করিতে হইবে মুক্ত, কারণ বক্তন অর্থই যুক্ত ।

গত মুরোগীয় মহাশূক্রের সময় বিজ্ঞান উঠিয়া পড়িয়া লাগিল নৃতন নৃতন খাতের স্কানে । এইরূপ সময়ে নৃতন খাতের প্রতি বিমুখ হওয়ার অর্থই হইল আস্ত্রবাত । খাত নৃতন হইতে পারে কিন্তু দৈহিক ব্যবস্থার তাহা আস্ত্রসাং করি

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তাহাকে তো নৃতন করা যায় না। আমরা বিলাতী জ্ঞান বিজ্ঞান লইতে গেলাম বিলাতী পথে, ফলে অর্থে সামর্থে স্বাস্থ্যে আমরা হইতে চলিলাম দেউলিয়া। খাত বাহিরেই জিনিয়, কিন্তু তাহা আস্তসাং করিবার ব্যবস্থা আছে আমার প্রাণ ধর্মের মধ্যে।

বিদেশ হইতে প্রাচীনকালে যখন রোমক প্রভৃতি জ্যোতিষের সিদ্ধান্ত এই দেশে আসিল তখন চতুর্পাঠীতেই তাহারা আশ্রয় পাইল বলিয়া দেশের অস্তরে এত সহজে প্রবেশলাভ করিল। আজ আমাদের সমস্তার অস্ত নাই। সেই হিসাবে চতুর্পাঠীর ক্ষেত্রে আমাদের পক্ষে যথেষ্ট প্রশংসন নহে। সন্তানী জ্ঞেদবশতঃ এই সঙ্কীর্ণতাকে রক্ষা করিতে গিয়া আমরা জগতের নানাবিধ জ্ঞান বিজ্ঞানে বধিত হই তবে আমাদের কপালে আছে নিশ্চিত মৃত্যুদণ্ড। আবার আধুনিকতার মোহে যদি আমরা আমাদের চিরস্তন স্বাভাবিক মর্মগত পদ্ধতকে অস্থায়ভাবে উপেক্ষা করি তবে জগতের সর্ববিধ সম্পদ আপনার করিয়া লইব কি উপায়ে? এই পদ্ধতকে যদি আমরা হারাই তবে সেই ক্ষতির আর কখনও পুরণ হইবে না।

চতুর্পাঠিগুলিকে এমন প্রশংসন করা দরকার যে তাহাতে যেন জগতের সকল জ্ঞান বিজ্ঞানের আশ্রয় সহজে মেলে। ইহারই সহায়তায় বিদেশগত সব জ্ঞান বিজ্ঞান শাস্ত্রবদ্ধ যান্ত্রিকতা হইতে মুক্ত হইয়া গুরুশিষ্যের প্রীতির সম্বন্ধের মধ্যে আসিয়া হইবে মানব-প্রাণ-রসে অভিষিক্ত (humanised)। নৃতন ও পুরাতনের মধ্যে যদি এই জোড়-কলম বাঁধিতে পারি তবে তাহা একদিকে হইবে নব ঐশ্বর্যে ঐশ্বর্যবন্ত ও অঙ্গদিকে হইবে চিরস্তন প্রাণধর্মে প্রাণবন্ত।

দরিজ এই দেশ ; বহু অর্থব্যয়ে প্রাকৃতজ্ঞনের চিত্তের সঙ্গে যোগহীন মোটা বেতনভোগী শিক্ষাধিকারীদের পোষণ করিতে অসমর্থ। স্বল্পে সন্তুষ্ট চতুর্পাঠীর অধ্যাপকেরা যদি দেশ-বিদেশের নানা শাস্ত্র অধ্যাপনা করিয়া প্রাকৃতজ্ঞনের চিত্তের সঙ্গে নানা ভাবে নাড়ীর যোগ রক্ষা করেন তবেই আমাদের এই দরিজ ও হৃগত দেশের বহু সমস্তার হয় সহজ সমাধান।

এখন চতুর্পাঠীতে সংস্কৃতের স্থলে বাংলা প্রভৃতি ভাষাকেই করিতে হইবে মুখ্যতঃ প্রতিষ্ঠা। বাংলা ভাষাকেই করিতে হইবে সেখানে শিক্ষার বাহন। তবেই দেশের প্রাকৃতজ্ঞনের হৃদয়ের সঙ্গে তাহার যোগ হইবে আরও সহজ ও সুদৃঢ়।

শিক্ষাক্ষেত্রে শিল্পের স্থান

শ্রীমন্দলাল বন্ধু

মাহুষ আনন্দ পাবার জন্য এবং জ্ঞান অঙ্গুলীয়নের জন্য যত রকম উপায় উন্মত্তাবন করেছে—তা'র মধ্যে ভাষা একটি প্রধান স্থান অধিকার করে' আছে। সাহিত্য, দর্শন, বিজ্ঞান প্রভৃতির চর্চা চলছে ভাষাকেই বাহন করে'। সাহিত্য মাহুষকে আনন্দ দেয়, কিন্তু তা'র প্রকাশের ক্ষেত্র সীমাবদ্ধ। তা'র সেই অভাব পূরণ ক'রছে শিল্প, সঙ্গীত, মৃত্যু ইত্যাদি কলা। সাহিত্যের যেমন একটা নিজস্ব প্রকাশ ভঙ্গী আছে, তেমনি শিল্প, সঙ্গীত, মৃত্যেরও আছে। মাহুষ যেমন তার দেহের বিভিন্ন ইলিয় দিয়ে বহির্জগতের সকল বস্তুর তত্ত্ববোধ ও রসবোধ করে এবং তা' অপরের কাছে প্রকাশ করে তেমনি শিক্ষার ক্ষেত্রেও কলা শিল্পের চর্চার দ্বারা তা'র তত্ত্ববোধ ও রসবোধের শিক্ষা সম্পূর্ণ হয় এবং তার প্রকাশভঙ্গী আয়ত্ত হয়। চোখের কাজ যেমন কানের দ্বারা হয় না, তেমনি ছবি, গান বা নাচের শিক্ষা কেবল লেখাপড়ার দ্বারা সম্ভব নয়। আমাদের শিক্ষা দানের আদর্শ যদি সর্বাঙ্গীন শিক্ষাদান হয় তবে কলাচর্চার স্থান এবং মান বিদ্যালয়ে লেখাপড়ার সঙ্গে সমান থাকা উচিত। এদেশের বিশ্ব-বিদ্যালয়ে এদিকে এ পর্যব্লুষ যা' ব্যবস্থা হয়েছে তা' মোটেই পর্যাপ্ত নয়। এর কারণ আমার মনে হয়, আমাদের মধ্যে অনেকের বিশ্বাস—শিল্পচর্চা একদল পেশাদার শিল্পীরই একচেটিয়া সম্পত্তি, সাধারণের সঙ্গে তা'র কোন সম্পর্ক নেই। শিল্প না বোঝার জন্য অনেক শিক্ষিত লোকও অগোরূব বোধ করেন না—আর জন-সাধারণের তো কথাই নেই, তা'রা ফোটো ও ছবির তফাঁ বোঝে না, আপানার খোকা পুতুলকে শিল্পের শ্রেষ্ঠ নির্দর্শন মনে করে' অবাক হ'য়ে থাকে; বিজ্ঞি রং করা লাল নীল বেগুনি জার্মান র্যাপার দেখতে চোখের পীড়াবোধ তো করেন না বরং উপভোগ করেই থাকে; সহজপ্রাপ্য সস্তা মাটির কলসীর বদলে, প্রেরোজনের মোহাই দিয়ে টিনের ক্যানেক্সা ব্যবহার করে। এর অস্ত দারী দেশের শিক্ষিত সমাজ এবং প্রধানতঃ বিশ্ববিদ্যালয়। আপাতদৃষ্টে বিভার ক্ষেত্রে দেশবাসীর সংস্কৃতি যেমন বাড়ছে বলে' মনে হয়, রসবোধের দৈন্তও তেমনি ক্রমশঃ পীড়াদারক হ'য়ে উঠেছে। এর

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

প্রতিকারের উপায় তথাকথিত শিক্ষিত সমাজে কলাশিক্ষার প্রচলন ব্যাপকভাবে করা—কারণ এই শিক্ষিত সমাজই জনসাধারণের আদর্শস্থরূপ। সৌন্দর্যবোধের অভাবে মানুষ যে কেবল রসের ক্ষেত্রেই বক্ষিত হয়, তা' নয়—তা'র মানসিক ও শারীরিক স্বাস্থ্যের ক্ষেত্রেও সে ক্ষতিগ্রস্ত হয়। সৌন্দর্য-জ্ঞানের অভাবে ধাঁরা ধাড়ীর উঠানে ও ঘরের মধ্যে জঙ্গল জড়ো করে' রাখেন,—নিজের দেহের এবং পরিচ্ছন্দের ময়লা সাফ করেন না, ঘরের দেয়ালে পথে ঘাটে রেলগাড়ীতে পানের পিক ও ধূধু ফেলেন,—তাঁরা যে কেবল নিজেদেরই স্বাস্থ্যের ক্ষতি করেন তা' নয়, জাতির স্বাস্থ্যেরও ক্ষতি করেন। তাঁদের ধাঁরা যেমন সমাজদেহে ন'নুঃ রোগ সংক্রমিত হয় তেমনি তাঁদের কুৎসিত আচরণের কু আদর্শও জনসাধারণের মধ্যে ছড়িয়ে পড়ে। আমাদের মধ্যে আর একদল আছেন ধাঁরা কলাচর্চাকে বিলাসী ও ধনীর একচেটিয়া সম্পত্তি বলে' প্রতিদিনের কার্যক্ষেত্র থেকে তাকে অবজ্ঞাভরে নির্বাসিত ক'রতে চান। তাঁরা ভুলে যান যে সুষমাই শিল্পের প্রাণ, টাকার মূল্যে শিল্পের বিচার চলে না। গরীব সাঁওতাল তা'র মাটির ঘরটি নিকিয়ে মুছিয়ে মাটির বাসন, হেঁড়া কাঁথা গুছিয়ে রাখে। আবার কলেজে-পড়া অনেক শিক্ষিত ছেলে প্রাসাদতুল্য হোষ্টেলের বা মেসের ঘরে দামী কাপড়-জামা তৈজসপত্র এলামেলো ছাড়িয়ে জবড়জঙ্গ করে রাখে। এখানে দরিজ সাঁওতালের সৌন্দর্যবোধ তার জীবন-যাত্রার অঙ্গীভূত ও প্রাণবন্ত, আর ধনী সন্তানের সৌন্দর্যবোধ পোষাকী এবং প্রাণহীন। আটের উপাসনার নামে ক্যালেণ্ডারের মেমসাহেবের ছবি শিক্ষিত লোকের ঘরে ক্রমে বাঁধানো হ'য়ে সত্যিকারের ভালো ছবির পাশে স্থান পেয়েছে দেখতে পাই। ছাত্রমহলে দেখি, ছবির ক্রম থেকে জামা ঝুলছে, পড়ার টেবিলে চায়ের কাপ, আর্সি চিকনী ও কোকোর টিনে কাগজের ফুল সাজানো। প্রসাধনে কাপড়ের উপর বুকখোলা কোট, সাড়ীর সঙ্গে মেমসাহেবের ক্ষুর-ওলা জুতো—এইরূপ সর্বত্রই সুস্থমার অভাব, আমাদের অর্থ সম্বেদ, সৌন্দর্যবোধের দৈশ্য সূচিত করে।

আবার আর একদল লোক আছেন—ধাঁরা বলেন, “আট ক’রে কি পেট ভরবে ?” এখানে একটা কথা মনে রাখতে হবে। ভাষাচর্চার মেমন ছটো দিক আছে—একটা আনন্দ ও জ্ঞানের দিক এবং একটা অর্থলাভের দিক, তেমনি শিল্পচর্চারও ছটো দিক আছে—একটা আনন্দ দেয় এবং একটা অর্থ দেয়। এই ছটু ভাগের নাম চাকুশিল্প ও কাকুশিল্প। চাকুশিল্পের চর্চা আমাদের দৈনন্দিন

ফুঁথচন্দে সহচিত মনকে আনন্দলোকে মুক্তি দেয়, আর কারুশিল্প আমাদের ভিত্তি প্রয়োজনের জিনিষগুলিতে সৌন্দর্যের সোণার কাঠি ছুইয়ে কেবল যে আমাদের জীবনযাত্রার পথকে সুন্দর ক'রে তোলে তাই নয়—আমাদের অর্থাগমেরও পথ করে দেয়। কারুশিল্পের অবনতির সঙ্গে সঙ্গে দেশের আর্থিক ফুর্গতির আরম্ভ হয়েছে। সুতরাং প্রয়োজনের ক্ষেত্র থেকে শিল্পকে বাদ দেওয়া দেশের পক্ষে আর্থিক দিক দিয়েও অত্যন্ত ক্ষতিকর।

শিল্পশিক্ষার অভাবে যে আমাদের বর্তমান জীবনযাত্রার পথকে অসুন্দর ক'রে তুলেছে তাই নয়, আমাদের অতীতের রসস্রষ্টাদের (স্মষ্ট) সম্পদ থেকে আমাদের বক্ষিত করেছে। আমাদের চোখ তৈরী হয়নি, তাই দেশের অতীত গৌরব—যে চিত্র, ভাস্তর্য, স্থাপত্য, একদিন আমাদের কাছে অবোধ্য ও অবজ্ঞাত ছিল, বিদেশ থেকে সমবর্দ্ধার আসবার দরকার হ'ল সেগুলি আমাদের বুঝিয়ে দিতে। আধুনিক যুগের শিল্পস্থিতি আজ ও বিদেশের বাজারে যাচাই না হ'লে আমাদের দেশে আদৃত হয় না—এ আমাদের লজ্জার কথা। এর প্রতিকারের উপায় সম্ভবে এইবার মোটামুটি ভাবে আলোচনা করা যাক।

শিল্পশিক্ষার গোড়ার কথা হচ্ছে—প্রকৃতিকে এবং ভালো ভালো শিল্পবস্তুকে অঙ্কার সঙ্গে দেখা, তা'দের সঙ্গ করা এবং ধাঁর সৌন্দর্যবোধ জাগ্রিত হয়েছে এমন লোকের সঙ্গে আলোচনা দ্বারা শিল্পকে বুঝতে চেষ্টা করা। বিশ্ববিদ্যালয়ের কর্তৃব্য প্রত্যেক স্কুল ও কলেজে অপর শিক্ষকের সঙ্গে সঙ্গে শিল্পশিক্ষকের স্থান রাখা, শিল্পকে পরীক্ষাক্ষেত্রে অবগুণিক্ষণীয় বিষয়ের মধ্যে গণ্য করা এবং প্রকৃতির সঙ্গে ছেলেদের যাতে পরিচয় ঘটিতে পারে তার উপযুক্ত ব্যবস্থা ও অবকাশ রাখা। অঙ্কনপদ্ধতি শিক্ষার সঙ্গে সঙ্গে ছেলেদের ক্ষমতা বাড়বে, ম্লে তা'রা সাহিত্য, বিজ্ঞান, দর্শন প্রকৃতির ক্ষেত্রেও সত্যদৃষ্টি লাভ ক'রবে। বিদ্যালয়ে কাব্যচর্চার ব্যবস্থা আছে, কিন্তু কাব্যে বিশ্ববিদ্যালয়ের পরীক্ষা পাশ ক'রলেই কেউ বড় করি হন না, তেমনি বিদ্যালয়ে শিল্পশিক্ষার আয়োজন ধাকলেই যে সকল ছেলেই শিল্পী হ'বে এবং ভাল শিল্পস্থিতি করতে পারবে, এমন আশা করা তুল।

প্রথমতঃ ছেলেদের বিদ্যালয়ে, গ্রহাগারে, পড়ার ঘরে এবং বাসগৃহে কিছু ভালো ছবি, ভাস্তর্য এবং অস্তান্ত চাকু ও কারুশিল্পের নির্দর্শন (অভাবে

ঞ্জিয়ে রাখতে হবে। তৃতীয়তঃ ভালো ভালো শিল্পনির্দেশনের ছবি ও ইতিহাস-দেওয়া সহজবোধ্য ছেলেদের বই উপযুক্ত লোক দিয়ে যথেষ্ট পরিমাণে সেখাতে হবে। তৃতীয়তঃ ছায়াচিত্রের সাহায্যে মাঝে মাঝে অব্দেশের ও বিদেশের বাছাই করা ভালো ভালো শিল্পবস্তুর সঙ্গে ছেলেদের পরিচয় ঘটাতে হবে। চতুর্থতঃ মাঝে মাঝে নিকটবর্তী কোনো ধাতুর, চিত্রশালা এবং অভীত কৌশিকির নির্দেশন উপযুক্ত শিক্ষকের সঙ্গে দল বেঁধে ছেলেরা গিয়ে দেখে আসবে। বিদ্যালয় থেকে ফুটবল ম্যাচ খেলতে ট্রেন ভাড়া দিয়ে ছেলেরা যখন গিয়ে থাকে তখন ট্রেন ভাড়া দিয়ে কোনো ভালো চিত্রশালা বা ধাতুর দেখে আসাও তাদের পক্ষে অসম্ভব হবে না। একথা মনে রাখতে হবে—একটা ভালো শিল্পবস্তু নিজে চোখে দেখলে এবং বুখলে শিল্পদৃষ্টি যতটা জাগ্রত হয়, দশটা বড়তায় তা' হয় না। ভালো জিনিষ ছোটবেলা থেকে দেখতে দেখতে কিছু বুঝে কিছু না বুঝে ছেলেদের চোখ তৈরী হবে, পরে তাদের ভালোমন্দি জিনিষ বিচার করবার শক্তি আপনি জন্মাবে এবং ক্রমশঃ সৌন্দর্যবোধ জাগ্রত হবে। পঞ্চমতঃ বিভিন্ন ঋতুতে বিভিন্ন উৎসবের আয়োজন করতে হবে প্রকৃতির সঙ্গে ছেলেদের যোগসাধন করাবার জন্য। সেই আয়োজনের মধ্যে থাকবে সেই সেই ঋতুর ফুল ফলের সংগ্রহ এবং শিল্প ও কাব্যে সেই সেই ঋতু সমস্কে যে সমস্ত সূন্দর সৃষ্টি আছে তার সঙ্গে ছেলেদের যতদূর সম্ভব পরিচয় ঘটাবার ব্যবস্থা। ষষ্ঠতঃ প্রকৃতিতে যে ঋতু উৎসব চলছে তা'র সঙ্গে ছেলেদের পরিচয় করাতে হবে; শরতের ধানক্ষেত ও পল্লবন, বসন্তের পলাশ শিয়ুলের মেলা তারা যাতে নিজের চোখে দেখে আনন্দ পায় তার ব্যবস্থা করতে হবে। বিশেষ ক'রে নগরবাসী ছেলেদের জন্য এটা অত্যাবশ্যক, আমের ছেলেদের কেবল এইদিকে দৃষ্টি আকর্ষণ ক'রতে পা'লেই চ'লবে। তাদের এই সব ঋতু উৎসবের জন্য বিশেষ ভাবে ছুটি দিয়ে বনভোজনের এবং ঋতু উপযোগী বেশভূষা, খেলা-ধূলার ব্যবস্থা করতে হ'বে। প্রকৃতির সঙ্গে যোগ সাধন একবার হ'লে প্রকৃতিকে সত্যিকার ভালোবাসতে শিখলে তাঁদের সৌন্দর্যের উৎস আর কখনও শুকোবে না, কৃরণ প্রকৃতিই যুগে যুগে শিল্পীকে শিল্পসৃষ্টির উপাদান বুগিয়ে এসেছে। সপ্তমতঃ বৎসরের কোনো

এক সময়ে বিদ্যালয়ে একটি শিল্পস্থির উৎসব ক'রতে হ'বে—যা'তে প্রত্যেক শিক্ষার্থী কিছু না কিছু শিল্পবস্তু নিজের হাতে তৈরী ক'রে এনে অঙ্কার সুন্দর ঘোগ দেবে,—তা' সে শিল্পবস্তু যতই সামান্য হোক। ছেলেদের স্থৃত শিল্পবস্তুগুলি উৎসবের অর্ধ্যরাপে সংগৃহীত হ'য়ে সাজানো থাকবে। ভূত্যগীত, শোভাযাত্রা প্রভৃতির দ্বারা উৎসবটিকে সর্বাঙ্গ সুন্দর ক'রতে চেষ্টা করা দরকার। উৎসবের কাল নির্ধারণ করা শক্ত, দেশভেদে সেটা বদলাবে। বাংলা দেশে শরৎকালই প্রশংসন মনে হয়।

আমরা যতদূর জানি তা'তে ভারতের শিক্ষাক্ষেত্রে কলাচর্চাকে উপযুক্ত স্থান দিয়েছেন—একমাত্র রবীন্নমাথ। বিশ্ববিদ্যালয়ের বর্তমান শিক্ষাপদ্ধতির ব্যবস্থার জন্য তিনিও পদে পদে বাধা পাচ্ছেন এবং পেয়েছেন। কলাচর্চার স্থান বিশ্ববিদ্যালয়ে না থাকায় অভিভাবকগণ কলাচর্চাকে অত্যন্ত অপ্রয়োজনীয় বোধ করেন, ফলে যে সমস্ত ছেলেদের ছোটোবেলায় নানা কলাশিল্পের চর্চায় বিশেষ অনুরাগ দেখা গিয়েছিল—তারাও ম্যাট্রিকুলেশন পরীক্ষার হ'এক বৎসর আগে থেকে কলাচর্চার অপ্রয়োজনীয়তা সম্বন্ধে সজাগ হ'য়ে উঠে এবং তা'দের শিল্পানুরাগ এই সময় থেকে ক'মতে ক'মতে একেবারে তিরোহিত হয়। এবিষয়ে আমাদের সকলপ্রকার জানচর্চার কেন্দ্র বিশ্ববিদ্যালয়ের অবহিত হবার সময় এসেছে। যে সমস্ত সাময়িক পত্রিকার সম্পাদক অপরিণত হাতের কাঁচা কাজ কোন বিশেষ ধারার শিল্পের নাম করে বাজারে ব'র করেন—তাদের বিক্রতরচির উদাহরণ উল্লেখ না করে' কেবল এই ব'ললেই বথেষ্ট হবে যে, ভালো নৃত্য ছবি না পেলে তারা বরং ভালো পুরাতন ছবি ছাপাবেন, কিন্তু বস্তুত্বের বা আঞ্চলিক ধাতিরে লোককে ভাস্তুপথে চালিয়ে অপরাধী হবেন না। চির নির্বাচনে সমবর্দ্ধার সৌন্দর্যবোধ সম্পর্কে লোকের সাহায্য নেওয়া প্রয়োজন হ'লে নিতে হবে, কারণ লোকশিক্ষার ক্ষেত্রে সাময়িক পত্রসমূহের ভালো বা মন্দ করবার শক্তি অত্যন্ত বেশী।

মোট কথা শিল্প সম্বন্ধে শিক্ষিত সমাজের এবং বিশ্ববিদ্যালয়ের উদাসীন কমলেই শিল্পচর্চার প্রসার বাড়বে এবং তার আনুষঙ্গিক কলকাপে দেশবাসীর সৌন্দর্যবোধ এবং পৰ্যবেক্ষণ-শক্তি বাড়বে—এবিষয়ে সঙ্গেহ নেই।

শিক্ষা ও সংস্কৃতিতে সংগীতের স্থান

শ্রীরবীজ্ঞান ঠাকুর

বাংলা দেশে আধুনিক যুগের যখন সবে আরম্ভকাল তখন আমি জয়েছি। পুরাতন যুগের আলো তখন ছান হয়ে আসছে কিন্তু একেবারে বিলীন হয় নি। পিছন দিক থেকে কিছু ইঙ্গিতে, কিছু প্রভ্যক্ষ, তার কভকটা পরিচয় পেয়েছি। তার মধ্যে জীর্ণ জীবনের বিকার অনেক ছিল, এখনকার আদর্শে বিচার করতে গেলে নানা দিকে তার শৈথিল্য তার দুর্বলতা মনকে সজ্জিত করতে পারে। কিন্তু তখনকার প্রদোষের ছায়ায় এমন কিছু দেখা গেছে যা অস্তসূর্যের আলোর মতো, সে দিনকার ইতিহাসের রোকড়ের ধাতায় তাকে অঙ্ককারের কোঠায় ফেলা চলবে না। তার মধ্যে একটি হচ্ছে সে কালের জীবনবাত্তার সঙ্গীতের সমাদর।

দেখেছি তখনকার বিশিষ্ট পরিবারে সঙ্গীতবিদ্যার অধিকার বৈদ্যক্যের অমাণ বলে গণ্য হোত। বর্তমান সমাজে ইংরেজী রচনায় বানান বা ব্যাকরণের স্থলনকে যেমন আমরা অশিক্ষার সজ্জাকর বলে চমকে উঠি, তেমনি হোত যদি দেখা যেত, সম্মানী পরিবারের কেউ গান শোনবার সময় শয়ে মাথা-নাড়ায় তুল করেছে, কিন্তু ওস্তাদকে রাগ রাগিনী ফরমাসের বেলায় সীত রক্ষা করেনি। তাতে যেন বংশবর্যাদায় দাগ পড়ত। সৌভাগ্য-ক্রমে তখনো আমাদের সঙ্গীত রাজ্যে বক্স হার্শোনিয়মের মহামারী কল্পিত করেনি হাওয়াকে। তস্মার তারে নিজের হাতে স্তুর বেঁধে সেটাকে কাঁধে হেলিয়ে আলাপের ভূমিকা দিয়ে যখন বড়ো বড়ো গীত-রচয়িতার ঝপদগানে গায়ক নিষ্ঠক সভা মুখরিত করতেন। সেই ছবির সুগন্ধীর কল্প আজো আমার মনে উজ্জল আছে। সূর প্রদেশ থেকে আমন্ত্রিত শুশীদের সমাদর করে উচ্চ অঙ্গের সঙ্গীতের আসর রচনা করা সেকালে সম্পূর্ণ অবস্থার শোকের আস্তসম্মান রক্ষার অঙ্গ ছিল। বজ্জত তখনকার সমাজ বিজ্ঞার ঘে-কোন বিষয়কেই শিক্ষণীয় ব'লে জানত। ধনীরা তাকে বাঁচিয়ে রাখবার

PROCEEDINGS OF THE BENGAL EDUCATION WEEK

দায়িত্বকে গৌরব বলে গ্রহণ করতেন। এই স্বতঃস্বীকৃত ট্যাঙ্গের জোরেই তখনকার শান্তিজ্ঞ পণ্ডিতেরা সমাজে উচ্চশিক্ষার পীঠস্থানের স্থাপন ও পুষ্টিকৃত্যান করতে পেরেছেন। তখন ধনের অবমাননা ঘটত যদি সমাজের সমস্ত প্রদীপ আলিয়ে রাখবার মহাসমবায়ে কোন ধনীর ফুপগতা প্রকাশ পেত। অরস্বতী তখন লক্ষ্মীর ঘারে ভিজ্ঞাবৃত্তি করতে এসে মাথা হেঁট করতেন না, লক্ষ্মী স্বয়ং বেতেন ভারতীর ঘারে অর্ধ্য নিয়ে নত্র শিরে। এমনি সহজেই আত্মগৌরবের প্রবর্তনায় ধনীরা দেশে সঙ্গীতের গৌরব রক্ষা করেছেন; সে ছিল তাদের সামাজিক কর্তৃত্য। এর খেকে বোধ যাবে সঙ্গীতকে তখনকার দিনে সম্মানজনক বিষ্ণা ব'লেই গ্রহণ করেছে।

যে বিষ্ণার সংকলণ অঙ্গরের ক্ষেত্রে, উপর নীচে তার ছই ভাগ ছিল। এক ছিল ঝাঁতি স্মৃতি দর্শন ব্যাকরণের উচ্চ শিখর, আর জনশিক্ষার নিয়ন্ত্রিত্বস্থর্তা উপত্যকা। উভয়কেই চিরদিন পালন করে এসেছেন সমাজের স্বত্য ব্যক্তিগত। নানা উপলক্ষ্যে তাদেরই নিবেদিত দানের নিরস্তর সাহায্যে নিঃস্বপ্নায় অধ্যাপকেরা বিনাবেতনে দুর্গম শান্তভাষারের সকল প্রকার বিদ্যা বিতরণ করে এসেছেন। বিশেষ বিশেষ স্থানে এই সকল বিষ্ণার বিশেষ কেন্দ্র ছিল, আবার ছোট আকারে নানা স্থানে নানা গ্রামে এক একটি ছায়াগন ফলবান বনস্পতির মতো এরা মাথা তুলেছে। অর্ধাৎ দেশের উচ্চ শিক্ষাও ছাঁটি-একটি দূরবর্তী বিশ্বিষ্টালয়ে নিনজ্ব ছিল না, তার দানসত্ত্ব ছিল দেশের প্রায় সর্বত্রই। তেমনি আবার প্রাথমিক শিক্ষার জন্য পাঠশালা প্রত্যেক গ্রামের প্রধানদের বৃত্তিতে পালিত এবং তাদের দালানে প্রতিষ্ঠিত ছিল, শিক্ষার্থীদের মধ্যে ধনী দরিদ্রের ভেদ ছিল না। এর দায়িত্ব রাজার অধিকারে ছিল না, ছিল সমাজের আপন হাতে।

সঙ্গীত সমষ্টেও তেমনি ছিল ছই ধারা। উচ্চ সঙ্গীতের ব্যয়সাধ্য চর্চার ক্ষেত্রে ছিল ধনশালীদের বৈঠকখানায়। সেই সঙ্গীত সর্বদা কাবে পৌছত চারদিকের লোকের, গানের স্বর-সেচনে বাস্তব হ'ত অভিষিক্ত। সঙ্গীতে যার স্বাভাবিক অহুলাগ ও ক্ষমতা ছিল সে পেত প্রেরণা, তাঁতে তার শিক্ষার হ'ত ভূমিকা। যে-সব ধনীদের ঘরে বৃষ্টিতোমী গায়ক ছিল, তাদের কাছে শিক্ষা পেত কেবল ঘরের লোক নয়, বাইরের জোকও! বৃষ্টি এই সকল

জায়গা ছিল উচ্চ সঙ্গীত শিক্ষার ছোট হোট কলেজ। বিখ্যাত বাঙালী সঙ্গীতবাদীক বহুতর যখন আমাদের জোড়াসাঁকোর বাড়িতে থাকতেন নানাবিধি লোক আসত তার কাছে শিখতে; কেউ শিখত মৃদঙ্গের বোল, কেউ শিখত রাগ রাগিণীর আলাপ। এই কলরবমূখ্য জনসমাগমে কোথাও কোনো নিরবেধ ছিল না। বিশ্বাকে রক্ষা করবার ও ছড়িয়ে দেবার এই ছিল সহজ উপায়।

এই তো গেল উচ্চ সঙ্গীত। জনসঙ্গীতের প্রবাহ সেও ছিল বহু শুরুকারিত। নদীমাঠুক বাংলা দেশের প্রাঙ্গণে প্রাঙ্গণে সেখন ছোট-বড় নদী-নালা শ্রোতের জাল বিছিয়ে দিয়েছে, তেমনি বয়েছিল গানের শ্রোত নানা ধারায়। বাঙালীর হৃদয়ে সে রসের দৌত্য করেছে নানা রূপ ধ'রে। যাত্রা, পাঁচালী, কথকতা, কবির গান, কীর্তন মূখরিত করে রেখেছিল সমস্ত দেশকে। লোকসঙ্গীতের এত বৈচিত্র্য আর কোনো দেশে আছে কি না জানিনে। সখের যাত্রা সৃষ্টি করার উৎসাহ ছিল ধনী সন্তানদের। এই সব নানা অঙ্গের গান ধনীরা পালন করতেন, কিন্তু অগুদেশের বিলাসীদের মতো এ সমস্ত তাদের ধনর্ঘ্যাদার বেড়া-দেওয়া নিভৃতে নিজেদেরই সঙ্গেগের বস্ত্র ছিল না। বাল্যকালে আমাদের বাড়িতে নলদময়স্তুর যাত্রা শুনেছি। উঠোনজোড়া জাজিম ছিল পাতা, সেখানে যারা সমাগত তাদের অধিকাংশই অপরিচিত, এবং অনেকেই অকিঞ্চন, তার প্রমাণ পাওয়া যেত জুতো চুরির প্রাবল্যে। আমার পিতার পরিচর ছিল কিশোরী চাটুজে। পূর্ব বয়সে সে ছিল কোনো পাঁচালীর দলের নেতা। সে আমাকে প্রায় বলত, দাদাজি, তোমাকে যদি পাঁচালী দলে পাওয়া যেত তা হ'লে—বাকিটুকু আর ভাষায় প্রকাশ করতে পারত না। বালক দাদাজিরও মন চঞ্চল হয়ে উঠত পাঁচালির দলে ধ্যাতি অর্জন করবার অসম্ভব ছুরাশায়। পাঁচালির যে গান তার কাছে শুনতুম তার রাগিণী ছিল সনাতন হিন্দুস্থানী, কিন্তু তার স্মৃত বাংলা কাব্যের সঙ্গে মৈত্রী করতে গিয়ে পশ্চিমী ধার্ঘার ঘূর্ণবর্তকে বাঙালী শাড়ীর বাহল্যবিহীন সহজ বেষ্টনৈ পরিণত করেছে।—

“কাতরে রেখো রাঙা পায় মা, অভয়ে, দীনহীন ক্ষীণ জনে যা করে। মা, নিঝওগে, তারিতে হবে অধীনে, আমি অতি নিরূপায়।”

—এই স্মৃত আঙ্গো অনে পড়ে। স্মর্যের ক্রিগচ্ছটা বহু লক্ষ ঘোজন

দূর পর্যন্ত উৎসাহিত হয়ে উঠে, এই কার ভানের খেল। আর আমার শামা পৃথিবীর বায়ুমণ্ডল প্রকাতের জগোগী কক্ষ আর স্বৰ্য্যাস্তকটুলের মোচালী জরির অঁচলা নিয়ে তবীর গায়ে গায়ে ঘিরে ঘিরে দক্ষিণ হাঙ্গরায় কাঁপতে থাকে। কিন্তু এও তো ঐর্ষ্য, এও তো চাই।

“ভালোবাসিবে বলে ভালোবাসি নে”। এতে ভানের প্রগল্ভতা মেই কিন্তু বেদনা আছে তো। এও যে নিতান্তই চাই সাধারণের জন্মে শুধু সাধারণের জন্মে কেন বলি, এক সময়ে উচ্চ ঘরের বসনাও স্থুতির মনে এর স্বাদ গ্রহণ করেছে। মেয়েদের অশিক্ষিতপুরুষের কথা কালিদাস বলেছেন, সরল প্রকৃতির লোকের অশিক্ষিত স্বাদ সংজ্ঞাগের কথাটাও সত্য। যে ঘরের পারুশালার দূর পাড়া পর্যন্ত মোগলাই ভোজের লোভন গঢ়ে আমোদিত, সেই ঘরেই বিধবা মাসীমার বাঁধা মসলা-বিরল নিরামিষ ব্যঙ্গনের আদর হয়ত তার চেয়েও নিয়ে হয়।—

“মনে রইল সই মনের বেদনা,

গ্রীবাসে যখন যায় গো সে

তারে বলি-বলি আর বলা হোলো না।”—

এ যে অত্যন্ত বাঙালী গান। বাঙালীর ভাবপ্রবন্ধ ছদ্ম অত্যন্ত তৃবিত হয়েই গান চেয়েছিল, তাই সে আপন সহজ গান আপনি স্থষ্টি না ক'রে বাঁচেনি।

তাই আজো দেখতে পাই বাংলা সাহিত্যে গান যখন তখন বেখানে সেখানে অনাহৃত অনধিকারপ্রবেশ করতে কুষ্টিত হয় না। এতে অঙ্গদেশীয় অলঙ্কারশাস্ত্র-সম্মত বীতি ভঙ্গ হয়ে থাকে। কিন্তু আমাদের বীতি আমাদেরই স্বভাব-সজ্ঞ। তাকে ভৰ্তনা করি কোনু প্রাণে? সেদিন আমাদের নটরাজ শিশির জাহাঙ্গীর মশায় কেনো শোকাবহ অতি গম্ভীর নাটকের জন্ম আমার কাছে গান ফরমাস করে বসলেন। কেনো বিলাতী নাট্যের এমন প্রস্তাৱ মুখে আনতেন না, মনে করতেন এটা নাট্যকলার মাৰখানে একটা অভ্যুৎপাত। এখানকার ইংরেজী পোড়োৱা ও হয়ত এৱকম অনিয়মে উজ্জ্বলী তুলবেন; অমিত্তি কৰিবেন, আমি কলি আমাদের আদর্শ আমাদের নিজের বন আপন আমন্দের তাঙ্গিতে স্বজ্ঞাবতই স্থষ্টি করবে। সেই স্থষ্টিতে কলাভূমির সংথম এবং হল্ল বাঁচিয়ে চলতে হবে, কিন্তু তার চেহারা যদি সাহেমী হাঁচের মা-হয় তবে তাকে পিটীয়ে বদল করতেই হবে একথা বলতে পারব

না। বিদেশী অলঙ্কারশাস্ত্র পড়বার মতু পূর্ব থেকে আমাদের নাট্য, যাকে আমরা দাজা বলি, হ্রস্ব তেও শানের স্মরের চালান সে যেন বাংলা দেশের চৃসংস্থানেই মতো, সেখানে স্থলের মধ্যে জলের অধিকারই যেন বেশি। কথকতা যেটা অলঙ্কারশাস্ত্রমতে শ্বারেটিভ শ্রেণীভূত, তার কাঠামো গঢ়ের হ'লেও স্বীকৃতিনভা যুগের মেয়েদের মতোই গীতকলা তার মধ্যে অনায়াসেই অসক্ষেত্রে প্রবেশ করত। মনে তো শুভ্র একদিন তাতে মুঝ হয়েছিলুম। সাহিত্যরচনার প্রচলিত পাঞ্চাঙ্গ বিধির কথাপুরণ করে' উদ্দেশ্যে আনন্দকে লজ্জিত হয়ে সংযত করিনি তো।

যাই হোক, আমার বলবার কথা এই যে, আঞ্চলিকাশের জগতে বাঙালী স্বভাবতই গানকে অত্যন্ত করে' চেয়েছে। সেই কারণে সর্বসাধারণে হিন্দু-স্থানী সঙ্গীত-রীতির একান্ত অঙ্গত হোতে পারে নি। সেই জগতেই কানাড়া আড়ানা মালকোষ দরবারী তোড়ির বহুমূল্য গীতাপক্ষণ থাকা সঙ্গেও বাঙালীকে কীর্তন স্থষ্টি করতে হয়েছে। গানকে ভালবেসেছে বলেই সে গানকে আদর ক'রে আপন হাতে আপন মনের সঙ্গে মিলিয়ে তৈরী করতে চেয়েছে। তাই আজ হোক কাল হোক বাংলায় গান যে-উৎকর্ষলাভ করবে সে তার আপন রাস্তাতেই করবে আর কারো পাথরজমানো বাঁধা রাস্তায় করবে না।

যে স্ত্রে এই প্রবক্ষ রচনা স্মৃক করেছিলেম সেই সূত্রটি এইখানে আর একবার ধরা যাক। দেশের সংস্কৃতিতে সঙ্গীতের প্রাধান্ত ছিল, আমাদের বিদায়োগ্য পূর্বযুগের দিকে তাকিয়ে সেই কথাটি জানিয়েছি। তার পরে বয়স যতই বাড়তে লাগল ততই অন্ত এক যুগের মধ্যে প্রবেশ করতে লাগলুম যে-যুগে ছেলেরা প্রথম বয়স থেকে কলেজের উচ্চ ডিগ্রির দিকে মাথা উচু ক'রে নোট মুখস্থ করতে লেগেছে। তখন গানটাকে সম্মানীয় বিষ্ঠা বলে গণ্য করবার ধারণা জুন্ত হয়ে এল; যে-সব বড়ো ঘরে গাইয়েরা আদর ও আশ্রয় পেয়ে এসেছে সেখানে সঙ্গীতের ভাঙা-বাসায় পড়ামুখ্যমন শুশ্রান্তিনি মুখরিত হয়ে উঠল, তখনকার যুবকদের এমন একটি শুচিবাস্তুতে পেয়ে বসল বাতে দুর্গতিগ্রস্ত গানব্যবসায়ীর চরিত্রের সঙ্গে জড়িত ব'রে' গান বিজ্ঞাটিরই পৰিত্রকপকে বীভৎস ব'লে কল্পনা করুতে লাগল। বাংলা দেশের শিক্ষাবিভাগে সঙ্গীতকে স্বীকার করতে পারে নি। তাই সঙ্গীতে কঁচি,

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অধিকার ও অভিজ্ঞা না পেলে তাকে অধিকার পরিচয় বলে কোথো সঁজো
বোধ করার কান্দণ তখনকার শিক্ষিতবশীর মনে রইল। শুরুক সে দিন
যেসব ছেলে হিটেডৌদের ভয়ে ঢাপা গলায় গান গেয়েছে তামৰ চরিত্রে
হয়েছে সন্দেহ।

অপর্যাপ্ত সেই সময়টাতে অনেক সৎকাজের শূচনা হয়েছে তে কথা
আনতে হবে। তখন আমাদের পলিটিক্স সাবধানে হই কূল বাঁজিরে এদিকে
ওদিকে তাকিয়ে মাথা তুলছে, বক্তৃতামুক্তে ইংরেজী বাণী হাতকুলি পাক্ষে,
ধৰনের কাগজের মুখ ফুটতে স্বীকৃত করেছে, সাহিত্যে হই একজন, অগ্রণী
পথে বেরিয়েছেন। কিন্তু দেশে বড়ো বড়ো প্রাচীন সরোবর বুকে গিয়ে
তার উপরে আজ যেমন চাব চলছে, তেমনি তখন সঙ্গীতের রসসঞ্চয় অস্তুতঃ
শিক্ষিত পাড়ার প্রায় মরে এসেছে, তার উপরে এগিয়ে চলেছে পাঠ্যপুস্তকের
আবাদ।

আপন নৌসভাকে শুচিতা বলে সম্মান দিয়েছিল যে-যুগ সে যে আজো
ফুটল হয়ে আছে তা আমি বলি নে। বাঙালীর প্রকৃতি আজ আবার আপন
গানের আসর খুঁজে বেড়াচ্ছে, স্মৰের উপাদান সংগ্ৰহ করতে সৃষ্টি করতে,
দেশের বিষ্ণুরতন এই শুভ মুহূৰ্তে তার আমুকুল্য করবে একান্ত মনে এই
কামনা করি।

• দৈবজন্মে যে স্মৰণ আমি পেয়েছিলুম সে কথা মনে পড়চে। আমার
ভাগ্যবিধাতাকে আমি নমস্কার করি। আমি মখন জন্ম নিয়েছি তখন আমাদের
পরিবারের আশ্রয় অন্তার বাইরে। সমাজে আমরা আত্য। আমাদের
পরিবারে পরীক্ষাপাসের সাধনা সেক্ষেত্রে গৌরব পায় নি। আমার জন্মারা হই
শুরুকজন বিশ্বিভাস্তুর সিংহভার একটুখানি পেরিয়ে ফিরে এসেছেন
ডিগ্রিবর্জিত নিষ্ঠাতে। সেটা ভালো করেছেন তা আমি বলিনে। কিন্তু
তার ফল হয়েছিল এই যে, ডিগ্রিজাহিত শিক্ষা ছাড়া শিক্ষার আর কোনো
পরিচয় পাই নয়, এই অক্ষ সংক্ষারটা ভাবাতের ঘরে ধাকতেই পারে নি।
আমার ভাইরা দ্বিতীয় নিষ্ঠার ভাবার তত্ত্বালোচনা করেছেন, কাব্যরস
আবাসনে ও উত্তাবনে তারা ছিলেন নিবিড়, চিরকলাও ইতস্তত অচুলিত হয়ে
উঠেছে, অর উপরে নাট্যাভিনয়ে কাজো কোনো সংকোচনাব হিল না। আর

অসম অসমিয়া উচ্চেছিল সুন্দরীত। মংঠালীর শুভাবিক শীক্ষামুক্ততা ও গীতমুখরতা কেবল বৃক্ষের মধ্যে আমাদের ঘরে ঘেন উৎসের মত উৎসারিত হয়েছিল। বিষ্ণু হিসেবে উপদীগানের বিখ্যাত গায়ক। প্রত্যহ শুনেছি সকালে সক্ষায় উৎসবে আকোডে উপাসনা-মন্দিরে তাঁর গান, ঘরে ঘরে আমার আঙুলোর অঙ্গুলী কাঁজে নিয়ে তাঁর কাছে শান চর্চা করেছেন, আমার কানে তানসেন প্রভৃতি শুণীর রচিত গানগুলিকে আমন্ত্রণ করেছেন বাংলা ভাষায়। এর মধ্যে বিশ্বয়ের অসমার এই, চিরাভ্যস্ত সেই সব প্রাচীন গানের নিবিড় আবহাওয়ার মধ্যে থেকেও তাঁরা আপন মনে যে-সব গান রচনায় প্রবৃষ্ট হয়েছেন তাঁর কল্প তাঁর ধৰ্মীয় সম্পূর্ণ স্বতন্ত্র, গীতপণ্ডিতদের কাছে তা অবজ্ঞার ঘোগ্য। গ্রাম-রাগগীর বিশুদ্ধতা নষ্ট করে' এখানেও তাঁরা আত্যাঞ্জনীতে ভুক্ত হয়েছেন।

গান বাজনা নাট্যকলাকে অক্ষুণ্ণ সম্মান দেবার যে দীক্ষা পেয়েছিলেম তাঁর একটুই বিশেষ পরিচয় দিই। আমার ভাইবুরা শিশুকাল থেকে উচ্চ অঙ্গের গান বিশেষ ঘরে শিখেছিলেন। সেটা তখনকার দিনে নিম্নার্হ না হলেও, বিশ্বয়ের বিষয় ছিল। আমাদের বাড়ির প্রাঙ্গণে প্রকাশ নাট্যমঞ্চে তাঁরা যেদিন গান গেয়েছিলেন সেদিন সামাজিক হাওয়া ভিতরে ভিতরে অত্যন্ত শুক্র হয়েছিল। সৌভাগ্যক্রমে তখনকার দিনের খবরের কাগজের বিষদ্বাত আঙ্গকের মতো এমন উগ্র হয়নি, তাহলে অপমান মারাত্মক হয়ে উঠত। তারপরে এই জাতীয় অত্যাচার আরো ঘটেছিল। এর চেয়ে উচ্চ স্থানে নিম্না পেয়েও সঙ্কোচ বোধ করি নি। তাঁর কারণ কেবলমাত্র কলেজি বিষ্ণাকে নয় সকল বিষ্ণাকেই শ্রদ্ধা করবার অভ্যাস আমাদের পরিবারে প্রচলিত ছিল।

আমাদের দেশের শিক্ষা-বিভাগ কলাবিভাগ সম্মানকে শিক্ষিত মনে স্বাভাবিক ক'রে দেবেন এই নিবেদন উপস্থিত করবার অভিপ্রায়ে এই স্থুমিকামাত্র আজ প্রস্তুত ক'রে এনেছি। আর যা-কিছু আমার করবার আছে সে নানা অসামর্য্য সহেও আমার বিষ্ণালয়ে আমি প্রবর্তিত করেছি।

মাঝুষ কেবল বৈজ্ঞানিক সত্যকে আবিষ্কার করে নি, অনির্বচনীয়কে উপলব্ধি করেছে। আদিকাল থেকে মাঝুষের সেই প্রকাশের দান প্রভৃতি ও মহার্ঘ পূর্ণতার আবির্ভাব মাঝুষ যেখানেই দেখেছে কথায়, স্বরে, রেখায়, বর্ণে, ছলে, মানব সম্বন্ধের মাধ্যমে, বীর্যে, সেইখানেই সে আশন আনন্দের

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সাক্ষ্যকে অমর-বালীতে স্বাক্ষরিত করেছে; প্রিন্সার্থি ভাবা তারাসেই বাণী থেকে
বধিত না হোক এই আমি কামনা করি; শুধু উপভোগ করবার উচ্ছেষ্ট সম,
অপতে অগ্রহণ করে' সুন্দরকে দেখেছি, সহ্যক পেয়েছি, তালুসেছি
ভালুসার ধনকে, এই কথাটি মাঝকে জানিবে কৃষ্ণার অধিকার 'ও শুভি দান
করতে পারে এমন শিক্ষার সুযোগ পেয়ে দেশ 'হজ হোক, দেশের 'সুখ হৈ
মাশা আকাঙ্ক্ষা অন্ত অভিযিঞ্চ গীতলোকে অমরে লাভ করক ।

শিক্ষক

গোলাম মোস্তাফা বি, এ, বি, টি.

শিক্ষক—মোরা শিক্ষক,
মানুষের মোরা পরমাত্মায়, ধরণীর মোরা দীক্ষক।

বিশ্ব-শ্রষ্টা সৃষ্টি করিল যেদিন মানবজাতি—
জলিল আকাশে চন্দ্ৰ-সূর্য-তারার দিশে ভাতি,
তবু সে আলোয় দূৰ হ'ল নাক' মনের অঙ্ককার,
'আলো চাই' রবে কাদিয়া উঠিল নরনারী বারবার।
আবার তখন আলিতে হইল নৃতন আলোর শিখা
আঁধারের বুকে লিখিতে হইল শুভ জ্যোতির লিখা।
সোনার প্রদীপ জলিয়া উঠিল ধরণীর গৃহতলে
হাসিয়া উঠিল বিশ্ব আবার নবীন কৌতুহলে।
কহিলেন ডাকি বিধাতা তখন—“হে মানব সন্তান,
সকল দানের চাহিতে শ্রেষ্ঠ আলোকের এই দান।
জ্ঞালিয়া রাখিতে হবে ধরণীতে স্বর্গের এই দীপ,
নিরাশার মাঝে এই হবে তব আশার অন্তরীপ।
নিভে যেন নাহি যায় ঝঝায় দীপ-শিখা, ছঁশিয়ার।
কার হাতে বল সঁপিব এ দীপ ? কে লবে ইহার ভার ?”
দিল নাক' সাড়া কেহ সেই ডাকে, কাদিল না কারো প্রাণ,
পরের লাগিয়া করিল না কেহ এই ত্যাগ সুমহান।
অবশেষে এক তাপস আসিল শান্ত-শিখ মুখ,
বিশ্ব-প্রেমিক, মানব-বন্ধু, কঙ্গায় ভরা বুক।
কহিল আসিয়া—“আমি লভ প্রভু তোমার আলোর ভার,
আগুলি' ইহারে আমি রব জাগি' নিশিদিন অনিবৃত্ত।”

খুশি হ'য়ে কন শ্রষ্টা তখন—“এত তুমি মহীর্মানু হো
‘ধন্তে তোমার সেবা-জ্ঞান আৱ ধন্তে তোমার প্রাণ ।
আজি হ'ত্তে তবে তোমার হস্তে দীপ্তি আলা হৈকৃত্বক,
গুরুভার তুমি লিলে ঘৰে, তব উপাধি দিলাম ‘গুরু’ !”

*

মোৱা সেই আদি গুৱাম শিষ্য—তাহাৰি বংশধৰ,
বিশ্বেৱ মনোমনিকুল-তলে বৈধেছি আমৱা ঘৰ ।
জ্ঞালিয়া রেখেছি আদিকাল হ'তে জ্যোতিৰ অদীপশিখা-
দূৰ কৱিতেছি মানব-মনেৱ আস্তিৰ মৱৌচিক ।
মোৱা বিপদেৱ বজ্ঞ তাদেৱ, আঁধৰ-পথেৱ সাথী,
কঠে মোদেৱ মুক্তি-মন্ত্ৰ হস্তে মোদেৱ বাতি ।
মানব জ্যোতিৰ পৃষ্ঠীয় জনক মোৱা ‘গুৱামহাশয়’
মোদেৱ আসন সবাৱ উচ্চে, তুচ্ছ সে কভু নয় !
পিতা গড়ে শুধু শিষ্যৰ শৰীৱ, মোৱা গড়ি তাৱ মন,
পিতা বড় কিবা শিক্ষক বড়—বলিবে সে কোন্ জন ?
মাতাপিতা শুধু আনে ধৰণীতে নৃতন যাত্ৰিদল
কচি শিষ্য তাৱা, জানেনা কিছুই, অসহায় ছৰ্বল,
স্নেহ দিতে পাৱে সবাৱে তাহাৱা, বাসিতেও পাৱে ভালো,
অম্ব ও জল—তা’ও দিতে পাৱে, পাৱে নাকো’ দিতে আলো !
নিৰুপায় হয়ে তখন তাহাৱা আসে আমাদেৱ ভাৱে
ফেলে যায় সেই নব পথিকেৱে মোদেৱ শিক্ষাগাৱে ।
আমৱা তাদেৱ কোলে তুলে নেই হাসি মুখে ভালবেসে
নৃতন জন্ম লতে বেন তাৱা নৃতন জগতে এসে ।
সকলেৱ মোৱা নৱন ফুটাই, আলো জ্ঞালি সক প্ৰাণে,
নব নব পথে চলিতে শিখাই—জীৱনেৱ সক্ষানে ।
পৱেৱ ছেলে এমৰি কৱিয়া মাঝুৰ কৱিয়া শেৰে
কুৱাইয়া দেই পৱকে আবাৱ অকাতৰে নিঃশেষে ।

তাদেৱ লাগিয়া নিখিলিল মোৱা কত যে ঘাতনা নই
 সে কথা কুরেও বলিন আমুৱা—মূক হ'য়ে মোৱা কই !
 এম্বিক কৰিয়া দেবা কৰি মোৱা মানুৰে সন্তুষ্ণ
 মানুষ হ'য়েছে মানুষ শুধুই আমাদেৱি কল্পাণে ।
 বহিত্ব বনে এত আলো, এত উৎসব-হাসি-শ্বান
 মোৱা না থাকিলে বার্ষ হইত—বহিত না কোন মান !
 মোৱা না থাকিলে এই ধৰণীতে কে চাহিত বাচিবারে ?
 মানুৰে মোৱা ধূলিতল হ'লুত এনেছি স্বৰ্গদ্বারে ।
 আনুষে-পশ্চতে প্ৰভেদ কোথায় ? প্ৰভেদ শুধুই ধই—
 মানুৰে আছে শিক্ষক—আৱ পশ্চদেৱ তাহা নেই !

ওগো গুৱাঁ, ওগো শিক্ষক, কেন হেৱি তব নত মুখ ?
 কিসেৱ অভাব ? কিসেৱ লজ্জা ? কিসেৱ দৈশ্য-হৃথি ?
 সান্ত্বনা আন প্রাণে প্রাণে আজ ওগো পুৱোহিত দল,
 মানুৰে মাবে শ্ৰেষ্ঠ মানুষ তোমাৱ এ ধৰাতল ।
 আজি দিকে দিকে হেৱিতেছ যত আলোক-প্ৰতিষ্ঠান,
 বিশ্বেৱ যত জ্ঞান সভ্যতা—সবই তোমাদেৱ দান !
 জগতেৱ যত মনীষী, বিজ্ঞ, দার্শনিক ও কবি,
 সবাৱ মাৰারে হেৱিতেছি আমি তোমাদেৱ মুখ-ছবি ।
 নিজেৱ জীবন-প্ৰস্তুতি দিয়ে জাতীৱ ভিত্তি-মূল
 মজবুত ক'ৱে রেখেছ তোমৱা,—এ ত্যাগেৱ নাহি তুল !
 তাজমহলেৱ মিনাৱ দেখেছ সুচী ও সুন্দৱ ।
 উন্নত শিরে দীড়াইয়া আছে শোভা কৰি অহৰ ;
 কাৱ বুকে তাৱা ভৱ ক'ৱে বল তুলেছে উচ্চে শিৱ ?—
 তাৱা ওই চিৱ-অখ্যাত শত প্ৰস্তুতি ভিত্তিৱ !
 যাৱা যত বড়, তাৱা তত ছোট—এই জগতেৱ রৌতি,
 সহজ হইয়া জেগে থাকে তাই অষ্টাৱ প্ৰেম-শ্ৰীতি ।

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স্বতন্ত্র আলো, স্কুলেস ও কল্পনিতেহে মোক্ষের পথে,
মুক্তির কিঞ্চুবনো-দিয়াছি তাদের বোগ্য স্নাসন দান !
মোক্ষে ক্ষেপণি জীবন ইপেছি নিখিল বিশ্ব-হিতে
অস্তজ্ঞান এই গুরু-গেরুব শুরু পেতে হ'বে নিতে !

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শিখ-ধরার ফুল-বাণিজায় আমরা মালীর দল
মুক্তি-জীবন-তরুমূল কৃষ্ণ ব'সে ব'সে ঢালি জল ।
ফুল ফুটে উঠে শোণায় শার্থায়, ফল ধরে যবে তায়
মালীর ভাগ্যে জুটে না সে সব, মালিকেরা তাহা পায় ।
ক্ষতি আইতাহে—এ অবহেলায় ছঃখ কিছুই নাই
ফুল ফুটাইতে ভালবাসি মোরা ফুল ফুটাইব তাই !
অপরে পৰক সে ফুলের মালা, লভুক সুষমা তার—
ফুলের শুভ হাসিই মোদের শ্রেষ্ঠ পুরস্কার !

